The Black Golconda

Isaac F. Marcosson

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THE BLACK GOLCONDA

The Romance of Petroleum

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NIGHT VIEW OF A REFINERY AT PORT ARTHUR, TEXAS, LARGEST REFINING CENTER IN THE WORLD

THE BLACK GOLCONDA

The Romance of Petroleum

By

ISAAC F. MARCOSSON

AUTHOR OF "ADVENTURES IN INTERVIEWING," "AN AFRICAN ADVENTURE," "THE BUSINESS OF WAR," ETC., ETC.

Illustrated

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TO

THE WILDCATTER

Whose Faith and Courage
Made the American
Oil Empire
Possible

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FOREWORD

The investigation for this book began in the summer of 1923 in the far-off confines of Asia Minor, carried on through the Balkans, and brought up, so far as the international aspect is concerned, at London and The Hague, the twin seats of a mighty offensive for the mastery of the recoverable oil areas outside the United States. For the American end of the narrative I visited nearly every area in our oil domain.

Petroleum is the goal of a world-wide struggle in which governments are competitors and in which we have a vital stake. Few realize that the far-flung activity which stokes all progress is distinctively American in origin and development. Animating what is here set forth is the desire to interpret both the romance and the achievement of the great industry which is as essential to civilization as coal and steel.

I. F. M.

New York, *May, 1924*

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CHAPTER I

THE INTERNATIONAL IRRITANT

In this topsy-turvy world most of the essential things seem to go by contraries. The alleged peace that followed the World War has so far resulted mainly in an armed truce. Most of civilization's forces at the moment are mobilized for destruction rather than construction. European self-determination does everything but determine.

None of these inconsistencies is perhaps more marked than that which relates to oil. Instead of being the prize lubricant, it has become with the sole exception of German reparations, the principal present-day international irritant. Like reparations, it has been perverted into a political instead of an economic issue. While oil and water do not mix, oil and politics seem to provide a more congenial compound. Nor is America an entire stranger to the by-products of this alliance.

Upon the solution of the petroleum problem, so far as supply is concerned, hinges a large degree of future peace and preparedness. Foreign offices today are more concerned about the status of oil domains than the outcome of reactions and revolutions. Nations, and not individuals, are at grips in the gigantic contest in which empires of production that literally drip with wealth are at stake. The world struggle for oil therefore is perhaps the most significant bloodless conflict now being waged.

The reason is obvious. From an age when coal and iron formed the backbone of industrial progress, we have come to the era when oil is a supreme necessity, ranking with transportation and agriculture, and essential to both. The universal search is for cheap power for mill and motor. What scientists call the petroliferous epoch is in reality a pestiferous period because of the grand scramble for that product of Nature which has been well called flowing gold.

To no people is this oil competition of more vital concern than to Americans. We have not only pioneered the industry but we are the largest producers and consumers. Up to the end of 1923 we produced a total of 7,182,564,000 barrels of crude. During that year our consumption per capita was 5.26 barrels as compared with .18 barrels for the rest of the world. Prodigal in our expenditure of this precious possession, we now reach the point where we must conserve or tap new areas. Interruption to an oil-fed industry is unthinkable.

A whole new vista of international relationship opens up. No longer can John Jones, hailing from anywhere in the United States, fill the tank of his flivver at a wayside station with the comforting realization that the nationality of his gas will continue unimpaired. The California, Oklahoma, and Texas fuel of today may be the South American or the Mesopotamian juice of tomorrow. It means that whatever policy of isolation we may follow with regard to European political affairs, the leash is off on oil. We are marching inexorably toward that hour where we must vie with Britain, France, and Holland, for a foothold that will guarantee the perpetuity of our monster motor machine. In fact we are already there.

Whether this international oil line-up is to be for harmony or for hostility remains to be seen. There is neither sentiment nor philanthropy in competition, and

no business today is so competitive as that which relates to every phase of petroleum production and refining. American oil interests have already found the door closed against them in more than one region. Elsewhere they have forced an entrance, while in still others they are the pawns of political forces.

One thing is certain. The old era of complacency is gone forever. We have become part and parcel of an economic evolution that reaches to the ends of the earth —and likewise for a considerable distance under it—and in which every American, whatever his social status, has a definite stake. What, then, is this world-wide oil competition? How is the United States involved? What will be the outcome in terms of supply and price?

In these preliminary chapters an effort will be made to analyze the international oil situation with special reference to American needs and participation. To get the data I have ranged from the Near East to the Far West, following in the footsteps of the petroleum pioneer as he plodded in the wake of war and peace, for figuratively the flag now floats from the derrick. I have talked with the overseas princes of production whose achievements parallel the familiar romances of American oil barons. I have sat in the chancelleries where foreign policies that were in reality oil policies had their birth and being.

Incessant change is the order with oil. There was a time when the average man believed that John D. Rockefeller was the one and only oil Crœsus, and the Standard Oil Company the monarch of monopoly. But just as new fields have changed the oil map, so have new giants set up fresh autocracies to imperil the old. You have, for example, the spectacle of a one-time clerk who toiled in his youth at a desk in Java become the Rockefeller of Europe and controlling, with his associates,

nearly a twelfth of the world's oil supply. You behold the rise of an obscure Australian lawyer to the eminence where he dictated oil terms to an empire and made the British Government his partner. You see the American prospector not only combating conspiracy all the way from Persia to Panama but bucking foreign-office intrigues as well. The far-off places are linked with the near in this absorbing quest for the liquid that stokes alike the furnaces of war and peace.

What most Americans do not comprehend is that an economic nationalism has developed around oil that is almost as dangerous to universal accord as that one-time foreign meddling of the Germans. In 1920 the good relations between England and the United States almost reached the straining point because an effort was made to freeze us out of the Mesopotamian field. Blood may be thicker than water, but oil is not, as we have found to our cost when we sought to claim equality of entrance in the domains that John Bull has marked out for his own.

Today the tension is relieved, but we are bang up against the British closed door in India and in various Crown Colonies. The Dutch also know how to play the game of exclusion, but they object to it in others. It was to secure participation by Americans that the State Department has made practically its only effort in behalf of American enterprise abroad in the years that have elapsed since the Armistice. If we are to have that much-needed aid to our enterprise—a firm and consistent foreign-trade policy—it will be entirely due to the acute necessity to widen our oil operations in alien lands. Because of his representations in behalf of the open door for petroleum production the world over, the British call Mr. Hughes the Secretary for Oil.

There is a widespread belief that the succession of talk-fests abroad, otherwise known as European con-

ferences, since 1918 have been principally to advertise certain health resorts and incidentally to discuss reparations. One has merely led to the other, for constructive results are meager. Analyze at least three of them, and San Remo in particular, and you find that oil not only vied with reparations in importance but was the only subject that precipitated action.

The point to be emphasized in this connection, however, is that the Anglo-French oil coalition—principally Anglo—against American interests at San Remo, stirred Washington into action and gave us a look-in on Mesopotamia. Whether we now have a share in zero, or something more tangible, is yet to be proved. In any event, the closed door to at least one undeveloped oil region has creaked on its hinges.

A definite, coherent, and consecutive narrative of world oil progress is a baffling and well-nigh bewildering task. It is almost as difficult as keeping track of the reparation mess. I have already indicated the kinship between those two vital problems in their perversion into nationalistic politics abroad. Europe, however, has no corner upon the capitalization of petroleum for political purposes.

In the United States the favorite target of the self-seeker who aspires to public office is the corporation, and particularly the oil company or the railroad. When all other issues fail, here is the unfailing stand-by that can be counted upon to provoke the populace into more or less righteous indignation, inspire costly investigation, and pile a few more laws upon the already burdened statute books. The only law which should be considered, and which is ignored, is the law of demand and supply.

The American petroleum operator in alien fields has been handicapped in the past not only by the lack of an energetic American oil policy, but also by the fact that

the political capitalization of the business at Washington has created an erroneous and harmful impression abroad. This has reacted unfavorably upon the whole industry.

An intelligent comprehension of the international oil problem is impossible without an understanding of the domestic situation. Ten years ago they were separate and distinct entities, because we had the supply and the rest of the universe had the demand. We have been exhausting our stores for the benefit of all the nations of the world while they have left their petroleum resources largely undeveloped. Here is the whole matter in a nutshell.

Likewise, the formulation of that much-desired firm and consistent American foreign oil policy hinges upon the extent to which Americans rise to the emergency. Unless, for example, they realize that oil production in all its phases is not a monopoly at home, neither they nor their Government can get behind the American oil producer abroad. This does not imply the indiscriminate underwriting by the public of oil shares for exploitation in alien lands, but it does mean a whole-hearted national support of an organized offensive with which is inseparably linked the fate of our trade, transport, and industry.

I use the words "organized offensive" advisedly, because one reason for the waste in the oil industry in the United States lies in the mad rush of everybody to a field where oil has been struck. The average American producer has gone on the theory that if the other fellow is there, he must go. The same mistake is likely to happen overseas, with costly consequences. The possible participation of an American group in Mesopotamia shows that in one section abroad the mistakes at home will not be repeated. The larger benefit is to be derived from coördination rather than haphazard, individual initiative.

Vast as have been our oil resources they have been

more fully developed than those of any other part of the world. The reasons for this expansion are not immediately manifest. Fundamentally the demand existed. The United States, however, lend themselves easily and admirably to petroleum operation.

We have a civilized country with temperate climate and a highly developed transportation system. Because of these conditions, once oil is actually located, production is a comparatively easy and simple matter. Transport of the necessary materials and equipment is immediately available by rail and motor truck. Labor flocks to the field. An immediate market for the output presents no difficult problems. Hence our oil resources have been more rapidly developed than those of other countries not so happily endowed from the standpoint of climate or transit facilities.

The possibility of oil production in the more highly-developed European countries is nil. Outside of these few European domains the remaining part of the world possesses few, if any, of the natural aids which the United States offer for the rapid exploitation of its petroleum reservoirs.

Compare operating conditions in this country with those of any other region where, within recent years, a considerable oil production has been secured, or where potential areas are supposed to exist, and you readily see how favored we are. Venezuela is a case in point. It is tropical, and the only available transportation is by water. Many of the best oil structures which geologists have been able to locate are inland. To reach them it is necessary to cut roads through the jungle, build camps, establish sanitary precautions so as to make it possible for white men to live there, import the skilled labor, material, and equipment before the preliminary work on a well can be started.

In 1913 the Royal Dutch went into Venezuela. Despite the fact that most of the properties on which they drilled were located on the coast, thus materially simplifying the all-important question of transportation, it has taken ten years, and an investment ranging somewhere from twenty-five to thirty millions of dollars, to get a commercial production. It is no wonder therefore that part at least of our own petroleum resources which can be, and have been, developed almost overnight, should have received preference over foreign, and more or less uncivilized sections where the capital investment, as well as labor effort, is immense.

Just as we pioneered the world, so have we supplied the universe. The principal drain, however, has come from our own phenomenal demands, born of American temperament, initiative, and expansion. Though many other countries—and they include China, Japan, Burma, Russia, Galicia, and Rumania—were ahead of us historically in the commercial utilization of petroleum, we—and it is typical of our instinct for waste—have gorged ourselves with the product, with the inevitable result.

You have only to take a passing glance at the statistics to realize why a foreign oil supply is essential to our industrial well-being. In 1922 the crude oil production in the United States was 551,197,000 barrels. The domestic consumption was 592,283,000 barrels. If we had not imported 126,000,000 barrels from Mexico we would have had a shortage. It means that if we are to maintain our growing oil business abroad we must depend upon new sources.

A striking illustration of the inroads on the oil supply is in a parallel between oil production and the motor vehicle. In 1911 we had 315 barrels of crude oil for each car; in 1912, 219 barrels; in 1913, 194 barrels; in 1919, 50 barrels; in 1920, 48 barrels. In 1923, because of the

unprecedented over-production in California the figure remained at 48 barrels, but this will probably be reduced when the 1924 tale is told. Of course the almost miraculous increase in the number of motor vehicles has considerably to do with the ratio. This increase in motor equipment is bound to go on, while the oil supply, with the drain on it, will not. That the ratio is bound to be a shrinking quantity is evident from the forecast of motor manufacture. For the next five years there will probably be an average annual production of 3,500,000 motor cars, or a total of 17,500,000 new vehicles by the end of 1928. This will give us a grand total of more than 30,000,000 cars of all kinds.

Now you can begin to understand why America must look beyond the seas to bulwark the fuel which is absolutely vital to our productive life. Nor is it necessary to call attention to the axiomatic fact that just as oil is the first aid to the pursuits of peace, so it is equally essential to the conduct of war. War today is a scientific business of destruction waged with machines, and those machines are mainly propelled by gasoline. The aeroplane, the submarine, and the tractor that hauls the big guns have revolutionized the bloody business of war. Lord Curzon once said that "the Allies rode to victory on a flood of oil," but he overlooked the important detail that much of it came from the United States. Let me repeat that but for those Yankee tankers that sailed unafraid through the perils of the deep, the result in 1918 might have been different.

Right here you have, all protestations to the contrary notwithstanding, the real reason why Britain regards the domains that fly the Union Jack as a closed oil corporation. It explains also why the British Admiralty acquired a controlling interest in the Anglo-Persian Oil Company. This, however, is a later story.

Until 1921 only three European powers—England, Russia, and Holland—were factors in the overseas oil situation so far as big production is concerned. Various American oil aggregations operated more or less extensively in Rumania and in various parts of Central and South America.

Our world contribution, however, was first in the standardization of the industry, and second in the widespread merchandizing of the refined products of crude oil, most of which came from the United States and Mexico. The World War emphasized civilization's almost acute dependency upon oil. More than one Allied fleet had to hug its harbor, and scores of offensives in France and elsewhere were either halted or postponed because of the lack of fuel to drive trucks, tractors and aeroplanes. With the signing of the Armistice, European powers—and especially England—dedicated themselves to the task of making themselves independent of alien sources of oil supply.

It was no new idea. Fully a decade before William Hohenzollern signed the death-warrant of his empire, the late Lord Fisher, the picturesque if verbose watchdog of the British Navy, started the movement to give the Admiralty a definite oil connection that would guarantee the adequate mobilization of an all-British fuel for the royal fleets. The net result was the historic deal concluded in May, 1914, between Winston Churchill, then First Lord of the Admiralty, and the Anglo-Persian Oil Company, through which the British Government acquired a controlling interest in this company, with its fields in Persia and elsewhere. The complete story of this deal, as well as the narrative of the Anglo-Persian Oil Company, will be told in the next chapter. I refer to this transaction here because it is a necessary part of the prologue to the international contest for oil supremacy, in which England plays the leading part.

With the end of the war, England lost no time in translating her ambition for oil control into actuality. There were two pressing reasons: One was what might be called the political, and related to the national defense. The British Navy is now 90 per cent oil-fired, as compared with 45 per cent before the war. The other was purely economic. In each you find the accentuation of nationality by the war a driving motive.

The explanation of the political provocation is obvious. Behind the other is the interesting story of Britain's evolution from a coal into an oil civilization. The history of British coal-mining is in reality the history of British industrial progress. That storied British Might largely rests upon island isolation, and the further happy coincidence that most of her coal fields are near the coast. Someone has well said that "coal has supported the whole edifice of British material prosperity." British ships have gone out laden with coal and returned with full cargoes of the raw materials and products essential to home and factory. In other words, the British merchant marine always had a full load both ways.

During the past ten years the prestige of this key export has been menaced. Reductions in hours of labor, fantastic increases of wages, strikes that disorganized output and gave opportunities to foreign competitors, political and legislative interferences, the advent of the petroleum age—to say nothing of possible railway electrification—have combined to make inroads in that one time impregnable bulwark of prestige and prosperity.

Economic self-defense was not alone in the dictation of some degree of nationalistic mastery of a huge oil reserve. Aside from the impairment of the coal industry, Great Britain is, next to the United States and in normal times Russia, the largest consumer of oil in the world. Her home resources consist of one well in Derbyshire

which produces a ton a day, and the Scotch shale fields which yield about 155,000 tons each year. She therefore had to bestir herself in foreign domains.

Immediately after the Armistice, England cast her eye over the world for available areas in which to launch her petroleum offensive. At that time the Entente was well oiled and working. The phrase "well oiled" suited the situation, because John Bull took on France in a combination for commercial control of oil resources as a political principle for Allied action. France got the mandate for Syria in exchange for the British right to exploit a combination Anglo-Dutch oil business in France.

England's desire was to consolidate herself in the Near East, with the Mediterranean region as the oil reservoir for both war and peace, while France's objective was a similar consolidation in Galicia and Rumania. Great Britain, let me add, has always stood for a copper-riveted nationalism in oil fields in Crown possessions like Trinidad and India. She had become an expert in what might be called the architecture of the closed door.

As a matter of fact, ever since 1918 England had been widening her sphere of oil influence. Costly as was the World War to her in blood and treasure—up to date Mesopotamia has meant the expenditure of a billion dollars in money and the loss of 100,000 officers and men —it gave her some compensation in the shape of immense petroleum areas. In accepting the mandate for Mesopotamia she acquired a vast amount of expenditure and trouble, but at the same time she got her hooks, politically and otherwise, into some of the richest potential oil areas anywhere.

With Mesopotamia we arrive at the scene in the international oil drama where the United States makes her initial appearance. It was not altogether pleasing to our British friends, and for a time it well-nigh imperiled good

feeling between the two great Anglo-Saxon nations. We appeared in the rôle of objector—both conscientious and consistent—and the interrupter of the proverbial good thing is seldom a popular individual. Because this episode marks the entry of America into the broader field of world petroleum, under the ægis of what must be the Magna Charta of our whole overseas economic endeavor, the complete story must be told in all its illuminating details.

To get the first chapter we must go to San Remo, that lovely Italian spot where Prussia's Red Prince, Unser Fritz—later the second Kaiser—suffered in his last days, and where, in April, 1920, the Allied Supreme Council met to bolster up peace and make some further distribution of the spoils of war. Just as Spa will rank in post-war history as the scene of what is called the coal conference—it was here that Stinnes first flouted the Allies—so will San Remo be known as the oil gathering. It fairly reeked with petroleum, but it also savored of some other things. Chief among them was the Anglo-French oil coalition. Though it was not aimed directly at the United States, we would have suffered from its consequences had we not made the representations which ultimately let the bars down and made us a member of the international oil club.

Although Lloyd George, Millerand, and Nitti held the center of the stage so far as the spotlight is concerned, the dominating figures in the allocation of oil territory were Sir John Cadman, K.C.M.G., who appeared as oil adviser for the British Government, and Philippe Berthelot, director of political and commercial affairs at the French Foreign Office. Between them they framed and signed the historic agreement which sought to clamp the lid down on what may some day prove to be the world's most productive oil fields. With the exception of the

Versailles Treaty, no other document of recent years has provoked quite so much international discussion. As a fomenter of diplomatic notes it runs second only to German reparations.

In Berthelot we have only the transitory interest which attaches to the accident of his holding a particular diplomatic post at the time of the San Remo Conference. A few years later he passed from the official scene. With Cadman it is a different matter. Not only has he loomed large in the British petroleum perspective but henceforth in this chapter and in those to follow immediately he stands out as a star, so to speak, in the world oil drama. It is well, therefore, to know who he is.

Sir John Cadman is a striking illustration of how the Great War gave the scientist the opportunity to emerge from the twilight of academic aloofness into the full glare of world events. In 1914 he was merely Professor Cadman and known only in those circles that specialized in coal and oil mining. On the day the Armistice was signed he had behind him the achievement of having been Oil Controller of England during those years of blood and slaughter when oil was almost as precious as human life itself. Today he is regarded as perhaps the foremost of petroleum diplomats. I have never met a more agreeable or persuasive person.

Like Stinnes, he comes from a coal family. His people in Staffordshire have mined the black diamond for generations and he was trained for the scientific side of it. His first contact with oil was with the Scotch shale industry. Subsequently he was sent by the British Colonial Office to Trinidad and elsewhere to make official investigations. It was while occupying the chair of mining at Birmingham University that he first realized the value of oil in world economics. He therefore started the department in the university which conferred the first degree in oil engineer-

ing. Meanwhile, as expert investigator, he carried out missions in Burma and Rumania, and was in Trinidad on one of these expeditions when the Great War broke.

Cadman hurried home. After the Second Battle of Ypres, where poison gas was added to the horrors of war, he was put on the staff of British scientists charged with the task of devising a counter terror. But the oil instinct was strong in him. He saw the various British Government departments bidding against each other for the precious liquid whose supply was being menaced more and more by the inroads of the German submarine. At that time Walter Long— now Viscount Long— was a member of the Government. At a cabinet meeting he told Lloyd George that the petroleum situation was precarious and that something must be done to coördinate the supply. Victory hung in the oil scales.

Lloyd George's reply was: "Very well, I put the task up to you. Whom have you to intrust with this vital work?"

"I suggest Professor Cadman," was the reply.

At the mention of the word "professor" Lloyd George's usually animated face fell. He has never had much use for academic folk, being largely on the unacademic side himself. It will be recalled that Clemenceau once declared that the little Welshman was the most uncultured man he had ever met in public life. Therefore the reference to Professor Cadman conjured up the vision of a prosy and whiskered person, more the student than the doer. However, Lloyd George sent for him.

Instead of the ponderous and academic scientist, he was confronted by a brisk, alert, and energetic man of medium height, whose smooth face had almost a boyish look. This smoothness of face is matched by a smoothness of manner in dealing with difficult situations. The premier was not only impressed with Cadman's per-

sonality but gave him a free hand to stabilize the vexing petroleum question.

Once in action, Cadman vindicated the confidence that Long had promised for him. As controller he organized petroleum in precisely the same way that he would have organized a huge corporation. He budgeted the needs of every department, and this included the army, the navy, munitions, and trade.

It was one of the most difficult, as well as one of the few unsung achievements of the war. To the confines of a single sheet of paper he reduced the balance sheet of a monster activity whose ramifications led to every battle zone on land and sea and touched every available field not controlled by the Germans.

Cadman became Chairman of the Inter-Allied Petroleum Council which rationed Britain, France, Italy, and all the other Allied powers and provided the oil they needed. As the war-petroleum overlord he established his first contact with the American industry, for, as I have related, with our entry into the conflict we set up the National Petroleum War Service Committee. The two groups coördinated their efforts. In the United States, as in England, all rivalries and interests were buried in the one great desire to win the struggle. The coöperation of those years of stress and travail was to be followed by an intensive competition for the very product which had been mobilized for a common victory.

When Cadman stepped upon the scene at San Remo he had a wide knowledge and experience behind him. Meanwhile he had become Sir John Cadman, K.C.M.G., his knighthood having been a merited appreciation of conspicuous war service, and was still director in charge of His Majesty's Petroleum Department. It was this latter post that clothed him with the authority he now began to exercise.

Although the German reparations problem persistently knocked at the door of every European conference, the specific subject that focused attention at San Remo was petroleum. It is significant of the importance the Allies attached to oil that, though European stabilization depended upon finding a way out of the baffling indemnity question, it was sidetracked for the remaking of the oil map along 100 per cent monopolistic lines. England and France could not look upon the reparations problem eye to eye, but they discovered an astonishing unanimity of view with regard to oil.

What is known as the San Remo Agreement, between Berthelot and Cadman, which was ratified by both the British and the French governments, spilled the beans, as we would term it in our inelegant but expressive vernacular. It showed precisely where England stood with regard to the world oil problem. Though France is a party to the contract, the master mind and the real beneficiary is Britain. This agreement is too long to print in full, but a few sections will indicate its motives and significance.

As a prelude, it may be well to state that immediately after the Armistice the Standard Oil Company of New York sent a staff to Palestine to operate under an oil concession granted by the Turkish Government prior to 1914. Palestine was then a part of Turkey. Both men and material were held up—the men were really taken into custody—by the British, who had obtained a mandate for this historic region. The same company sought to prospect in Mesopotamia, but their representatives were not permitted to carry on their work despite the fact that British geologists in army uniforms were engaged in the same task. England, as most people know, has the mandate for Mesopotamia. I refer to these two mandated areas because they, and especially Mesopo-

tamia, were vital factors in the developments at San Remo.

At the beginning of the San Remo Agreement is this general statement:

This agreement is based on the principles of cordial coöperation and reciprocity in those countries where the oil interests of the two nations (Great Britain and France) can be usefully united. This memorandum relates to the following states and countries: Rumania, Asia Minor, territories of the old Russian Empire, Galicia, French Colonies, and British Crown Colonies. This agreement may be extended to other countries by mutual consent.

So much for the broad general outline. Early in this document is the following section, which showed the way the spoils of war were to be divided:

All shares belonging to former enemy concessions which can be secured, and all other advantages derived from these negotiations, shall be divided, 50 per cent to British interests and 50 per cent to French interests. It is understood that in the company or companies to be formed to undertake the management and the exploitation of the said shares, concessions, and other advantages, the two countries shall have the same proportion of 50 per cent in all capital subscribed, as well as in representatives on the board and voting power.

The section just reproduced had no particular commercial interest for America, because, save for the cost of our Army of Occupation and certain war claims growing out of the sinking of the Lusitania and other ships, we have no stake in the war gains. What did concern us vitally was that section of the San Remo Agreement which dealt with Mesopotamia, and which started the international back-fire which smoked out the Anglo-French monopoly. Here it is:

The British Government undertakes to grant to the French Government or its nominee 25 per cent of the net output of crude oil at current market rates which His Majesty's Government may secure from the Mesopotamian oil fields, in the event of their being

developed by government action; or in the event of a private petroleum company being used to develop the Mesopotamian oil fields, the British Government will place at the disposal of the French Government a share of 25 per cent in such company. The price to be paid for such participation to be no more than that paid by any of the other participants to the said petroleum company. It is also understood that the said petroleum company shall be under permanent British control.

In a supplemental paragraph the British Government agreed "to support arrangements by which the French Government may procure from the Anglo-Persian Company supplies of oil, which may be piped from Persia to the Mediterranean through any pipe-line which may have been constructed within the French mandated territory, and in regard to which France has given special facilities, up to the extent of 25 per cent of the oil so piped, on such terms and conditions as may be mutually agreed between the French Government and the Anglo-Persian Company."

You will observe from these sections of the San Remo Agreement that the United States was left out in the cold. We had done our part in the Great War to secure equality and democracy, and we had made no attempt to break in on the spoils. The American Government rightfully felt that its nationals should not be discriminated against in the matter of entrance to those foreign oil areas which were becoming more and more indispensable to the integrity of the American motor machine and, beyond that, to a considerable portion of their transport and industry. The fight for the open door began. We sought to establish for the mandated areas that same traditional principle of economic quality that we fostered in China. It is the basis upon which American overseas policy is reared.

There is no need of going into the long series of diplomatic notes between the American and British Govern-

ment which followed the ratification of the San Remo Agreement. One section will indicate the American point of view. Incidentally it points out one reason why Europe is still in turmoil.

In the first protest transmitted to the British Foreign Office by John W. Davis, then American ambassador to the Court of St. James, this statement appears:

> The Government of the United States desires to point out that during the peace negotiations at Paris leading up to the Treaty of Versailles it consistently took the position that the future peace of the world required that, as a general principle, any alien territory which should be acquired pursuant to the treaties of peace with the Central Powers, must be held and governed in such a way as to assure equal treatment in law and in fact to the commerce of all nations. It was on account of, and subject to, this understanding that the United States felt itself able and willing to agree that the acquisition of certain enemy territory by the victorious powers would be consistent with the best interests of the world. The representatives of the principal Allied powers, in the discussion of the mandate principles, expressed in no indefinite manner their recognition of the justice and far-sightedness of such a principle and agreed to its application to the mandates over Turkish territory.

Throughout the long interchange of communications the American Government bore down hard upon the necessity for the open door. To quote from a paragraph in Secretary Bainbridge Colby's note to Lord Curzon, "because of the shortage of petroleum, its constantly increasing commercial importance, and the continuing necessity of replenishing the world's supply by drawing upon the latent resources of undeveloped regions, it is of the highest importance to apply to the petroleum industry the most enlightened principles recognized by nations as appropriate for the peaceful ordering of their economic relations."

Needless to say, the British Government in its replies dwelt upon "the nervousness of American opinion con-

cerning the alleged grasping activities of British oil interests," and furthermore minimized the allegation that England's mobilization of oil reserves was for war.

At the risk of digression—it bears however on the open door for oil and expresses the American petroleum trade point of view—let me reproduce a statement made by one of the most capable of American oil experts in connection with a nationalized oil supply and war. He said:

"For a great nation to say, 'since oil is a prime necessity to us in time of war, the oil resources of our state must be developed solely by our own nationals,' overlooks the economic and practical points; namely that very large sums are required to develop new oil regions, and much of the money spent in prospecting is not productive; that in case of war only developed oil-fields have practical value; and that should there be a war, any developed oil field is immediately mobilized by the country concerned, irrespective of whether the development was due to domestic or foreign capital. It is better economics to have the losses of development shared by foreign capital than to have the whole loss fall at home. The most complete national self-interest and self-advancement says, 'throw the doors wide open.'"

Britain clung tenaciously to her closed-door policy, which was no less stringent in Asia Minor than in India, where American oil interests have never been able to get a foothold. At the high tide in the flow of oil notes between the British and American Governments, the indictment against England rested on these counts:

First, that she had made the San Remo Agreement with France with no regard for American interests; second, that in the mandated territories, particularly Mesopotamia, she intended to keep whatever oil might be discovered in her own hands; third, that the British

Government itself had entered the oil business and was responsible for the activities of the Anglo-Persian Oil Company; fourth, that several of the self-governing dominions over the seas had placed an embargo on the development of their petroleum deposits by non-British subjects; fifth, that while this policy of exclusion was being carried out in the Near East and throughout the empire, British-owned or controlled companies were acquiring valuable oil concessions in Mexico, Costa Rica, Venezuela, Ecuador and Nicaragua, countries which Americans had come to look upon as being within their own sphere of commercial influence and exploitation.

If you had asked Sir John Cadman—then, as now, the real power behind the shaping of British oil policy—to express an opinion on what was going on, he would very likely have responded in this wise:

"The British policy is first and foremost to encourage the maximum of production, to recognize all legitimate pre-war rights in the territories that have come under British authority, and to discriminate against no interests merely because they are foreign. So far as oil was ever a serious issue between the British and American Governments, it was because the question was being looked at not in the light of facts but of fears, conjectures, and stupid misunderstandings. I am far from saying that these misunderstandings were all on one side. Those in this country (England) who were perpetually inveighing against the American Oil Trust and accusing it of bleeding the British consumer white were no wiser than the Americans who went about proclaiming that Great Britain was out to corner the oil fields of the world."

The exchange of oil notes—which at times were anything but oily—might have gone on indefinitely while England intrenched herself more securely in the Near Eastern oil fields and we fretted at the frontiers of foreign

oil opportunity. Then came an event which changed the whole situation.

Upon the severance of his official relations with the British Government, Sir John Cadman made a commercial connection which not only altered his personal fortunes but led to a breach in the British closed national petroleum corporation. It once more emphasized a fact, familiar to all traders who regard the world as their field, that individuals can get together in a business transaction far more easily and successfully than nations. Furthermore, it again proved the efficacy of the cardinal maxim which ruled the life of Cecil Rhodes, which was that "it is better to deal with a man than fight with him."

Cadman became adviser and a director in the Anglo-Persian Oil Company. No asset that he brought to his new association, not even his unusual oil equipment, was greater than the knowledge of men and methods gained during and immediately after the World War. He viewed with genuine alarm the growing breach between England and America over the closed door. None knew so well as he the immense technical advance that America would enlist for the new field, and he knew also that the moral value of Anglo-Saxon coöperation was not to be despised as a commercial factor.

The Anglo-Persian Oil Company was in a peculiar position to function as a sort of semi-official agency, because, through the famous Admiralty deal to which I have referred, the British Government was a full-fledged partner in it. The company owned the immense concession acquired by the late William Knox D'Arcy from the Persian Government, which includes all Persia except the five northern provinces. It had another string to its bow in the shape of a 50 per cent interest in the Turkish Petroleum Company. With the latter concern we at last

reach the turn in the long lane that America had followed in her efforts to reach the Mesopotamian oil fields.

You will recall that in the section of the Berthelot-Cadman agreement relating to Mesopotamia there occurred the words:

"In the event of a private petroleum company being used to develop the Mesopotamian oil fields, the British Government will place at the disposal of the French Government a share of 25 per cent in such company. . . . It is also understood that the said petroleum company shall be under permanent British control."

This reference was to the Turkish Petroleum Company, which controls the whole of the Mesopotamian oil fields under a concession, or rather a right to operate, granted before the war by the Turkish Government. Behind this concession is the tangle of an international contest for a rich domain that is linked up with that shattered German dream of economic conquest of the Near East. No less a person than the former Kaiser himself was a party to the negotiations.

Nor is the controversy over it ended. The Turkish Petroleum Company concession was aired at Lausanne, where the American delegates had confirmation of it kept out of the treaty with Turkey. Despite the high hopes that repose in it—to say nothing of the possible American association—the validity of the concession is still in doubt.

Although the area is to a large extent unprospected, the two richest potential oil fields in Mesopotamia are in the vilayets—provinces—of Mosul and Bagdad. Mosul lies in the north of the present confines of Mesopotamia, which is now known as Iraq. The Turks claim this section as a part of their territory, which is one of the many complications that have arisen.

Before the World War, Mesopotamia was part of the old Turkish Empire, and the Mosul field—as it is more

commonly known—was on the Sultan's so-called Civil List. This list contained all the rich pickings of the empire and was regarded as the ruler's particular prerogative. Private enterprise was therefore debarred from it. In 1904, following William Hohenzollern's spectacular visit to Constantinople, the Anatolian Railway Company, nominally a Turkish concern but in reality a German enterprise—for it was the first link in the famous Berlin-to-Bagdad system and was fostered by the Deutsche Bank—obtained a right from the Civil List to explore for oil in the vilayets of Mosul and Bagdad. The Germans, however, failed to make good, and two years later D'Arcy, who by this time had obtained his Persian concession, started the negotiations to annex Mosul for a British group. D'Arcy wanted an outlet to the Persian Gulf, and the duel between the British and the Germans began. After the Young Turk revolution of 1908, when Sultan Abdul-Hamid's power was broken, the imperial prerequisites to the Civil List were transferred to the Turkish Ministry of Finance.

Meanwhile the Royal Dutch-Shell interests put in an oar, which meant that England, Germany, and Holland were now involved. In 1912, Sir Ernest Cassel, who controlled the National Bank of Turkey, a British institution, got all the conflicting interests together and formed the Turkish Petroleum Company, Ltd., which took over whatever claims the Germans and D'Arcy had. In the interim D'Arcy's interests and claims in Mesopotamia had been taken over by the Anglo-Persian Oil Company.

There is no need of going into the confusing series of deals and counterdeals which followed. What concerns us is the larger fact that by 1914 a new Turkish Petroleum Company—it is a British limited company—had been organized, with 50 per cent of the stock owned by the Anglo-Persian Oil Company, 25 per cent by the Royal

Dutch-Shell interests, and 25 per cent by the Deutsche Bank, which meant the Germans. Since all interests had been harmonized, the British and German ambassadors at Constantinople made a combined attack on the Turkish Government for a valid concession.

In June, 1914, the Grand Vizier, on behalf of the Turkish Government, wrote to the two ambassadors a letter stating that the Turkish Ministry of Finance, having been substituted for the Civil List in the matter of the petroleum deposits known or to be discovered in the vilayets of Mosul and Bagdad, consented to lease these deposits to the Turkish Petroleum Company. The ministry reserved the right to fix later its share in the enterprise as well as in the terms of the contract.

Such was the situation when the Great War broke in 1914. Naturally all negotiations relating to the Turkish Petroleum Company ceased. The next time the company lifted its head, so far as the public knew, was at the San Remo Conference, where the French were given the 25 per cent interest formerly held by the Germans. This made the Turkish Petroleum line-up 50 per cent British, 25 per cent Royal Dutch-Shell and 25 per cent French. Despite the fact that the British lacked actual control, they dominated the enterprise.

Now we can pick up Cadman again. When he assumed his post with the Anglo-Persian Oil Company he began to look about him for some means by which the growing American hostility to the closed door in Mesopotamia could be sterilized. The British Foreign Office, in its official disclaimers, was insisting upon its innocence so far as exclusion was concerned, while the State Department at Washington, as well as League of Nations enthusiasts like Lord Robert Cecil, was maintaining that mandate rights were being violated in bottling up the oil fields. Cadman came to the conclusion that it was good

policy, to say nothing of good business, to let the Americans in on the Anglo-Persian share of the Turkish Petroleum Company, and a historic negotiation got under way.

During the years following the Armistice, when American oil consumption grew by leaps and bounds, farsighted producers in this country began to be alarmed about our supply. The problem was to find the most available foreign field. Persia at that time was out of the question, although just now there is a likelihood of our entry into the five northern provinces not included in the D'Arcy concession. The Mexican situation was becoming uncertain. Central and South American fields offered huge reservoirs but they had reached no advanced development. The time came therefore when some kind of concerted action elsewhere overseas was imperative.

Secretary of Commerce Hoover was keenly alive to the perils of the problem. On August 16, 1921, he called a meeting of leading American oil producers in his office at Washington. In the blunt but effective manner that he has of expressing his mind, he said to them in substance:

"As a result of a survey of our own and the world situation, it is evident that our domestic sources of oil will last only a generation at the present rate of exhaustion. Meanwhile foreign nations are rapidly preëmpting the available foreign oil-bearing territory. Unless our nationals reënforce and increase their holdings abroad, we shall be dependent upon other nations for the supply of this vital commodity within a measureable number of years. The truth of the matter is that other countries have conserved their oil at the expense of our own. We must go into foreign fields and in a big way. Though individual initiative will count for much in the location of deposits, the larger American end will be served by concerted action in production."

The net result was the organization of what is known as

the American Group, which includes not only Standard Oil interests but the leading independents. This group comprises one hope of American oil operations overseas. If successful, it will establish the precedent for joint operation in other fields.

Secretary Hoover's initiative played into the hands of the British interests. The incessant hammering of the American State Department for the open door prodded the British Foreign Office into a departure from its policy of exclusion. As a consequence, a half interest in the Anglo-Persian's share of the Turkish Petroleum Company was offered to the Americans. Walter C. Teagle went abroad to conduct the negotiations on behalf of his colleagues, who, it is well to remember, included the largest independents of the industry. A frank discussion of a possible American participation developed. This participation has not only been outlined but a plan of coöperation tentatively agreed upon.

The Turkish Petroleum Company's concession at the time I write rests upon rather uncertain support. It is concretely embodied in that letter from the Grand Vizier to the British and German ambassadors. The right to operate was never confirmed by the Turkish Parliament. Not only has the Turkey which granted this original right ceased to exist, but Mesopotamia is now outside Turkish territorial confines.

This exclusion from Turkish territory is bad enough, but Mesopotamia has its own ruler—King Feisal—and an Assembly. The Turkish petroleum concession must be ratified by the new Mesopotamian Government, which, so far as the Assembly is concerned, is not altogether friendly to England, although John Bull fought valiantly to maintain the integrity of the domain. Therefore until the Mesopotamian—or rather the Iraq—Government confirms the concession, its validity is open to question.

There is another phase. A participation by any American group in the foreign field must conform to the State Department's conception of the open-door policy, which not only means entrance under the same conditions as any other nationals, but an equal opportunity for everybody. Thus the specific American Group organized for a possible alliance with the Turkish Petroleum Company cannot preclude any other oil producers, whatever their flag, from subleasing territory in the Mesopotamian field. Upon this condition the group is insistent.

Again, if by any remote chance the present Turkish Government has any say in the matter of a Turkish petroleum concession, it will be adverse. When I interviewed Rauf Bey, then prime minister of the new Turkish régime at Angora, he made this statement:

"We will never recognize the Turkish petroleum concession. There must be a new deal all around."

Moreover, the Turks today have no particular love for the British and still long to put their fingers into the Mesopotamian pie. In the old days the Sultan's government retained its hold upon the Mesopotamian tribes by inciting one against the other. It was merely an exemplification of the traditional Turkish policy of capitalizing the other fellows' discords and troubles. Turkish history may repeat itself when it comes to the matter of a ratification of the Turkish petroleum concession.

As the matter now stands, the big significance of the Turkish petroleum episode is: First, that it marks a change in the British closed-door oil policy in the Near East; second, that at last American oil producers are awake to the necessity of organized effort abroad.

These American producers are handicapped by the lack of a practical government foreign policy such as Britain places squarely behind her nationals overseas.

Though governments in England change from time to time, the policies that affect British trade and industrial exploitation abroad do not. On the other hand, each new Secretary of State at Washington has a different foreign outlook. Moreover, in things commercial the British Foreign Office seeks always to anticipate events, while our State Department usually acts after events have happened. "To foresee is to rule," whether in the business battles of peace or in the actual conflicts of war.

Whatever the outcome, we have definitely aligned ourselves in the contest for world oil supremacy. It is not a bid for corporate power, but a struggle for economic self-preservation.

CHAPTER II

THE BRITISH ADVANCE

If you open a world map showing oil penetration by nationals in colors you will find that the sun never sets on the British hue. From Persia to the Argentine John Bull is boring for petroleum. Not only does he want to make himself self-contained in the all-important matter of supply but he is reaching out for a domination of the industry now so essential to trade and transport.

To Americans, accustomed to the power and prestige of their petroleum production, the disclosure of British ambition to rule the oil domains will come as a surprise. More significant is the translation of that ambition into reality in scores of places, both in keen competition and in exclusion of our interests. While our initiative overseas was being dulled by a mistaken conception of the inexhaustibility of our stores, England preëmpted most of the available foreign fields. We awoke to the necessity of the situation to find the Union Jack flying wherever we turned.

There are many reasons why England now vies with us for oil supremacy. One is the lesson learned during the Great War, when acute dependence upon alien sources was revealed, and when victory literally hung in the oil scales. Another is the post-war determination summed up in the words "imperial self-sufficiency." Though the empire must reconcile itself eventually to loss of political control of its dominions, it has determined to safeguard the natural resources in them. Since only 2 per cent of the world's oil production comes from within the con-

fines of the empire, other territories, regardless of nationality, have been drawn upon.

The third provocation grows out of the fact that next to the United States, and in normal times Russia, Great Britain is the largest consumer of oil in the world. It is the chief foreign market for refined petroleum products exported from the United States. Finally, in the evolution from a coal to an oil civilization, she is forced to adapt herself to the changing order, more especially since coal has been her chief key export. Henceforth she must try to maintain the equilibrium of commercial forces with oil instead of coal.

Bulwarked by billions in money, with the Government a partner in one of the vast aggregations, and with two groups—the Anglo-Persian and the Shell interests—overtopping that one-time American monopoly at the height of its power, the British oil offensive presents one of the most striking phases of the world struggle for oil. Through it runs a strain of human interest as picturesque as that which attaches to the names of Rockfeller, Rogers, and Doheny.

British oil development naturally falls in two sections. One is the little-known production at home, which, it is interesting to note, was started by an all-American staff. The other deals with the campaign abroad that reaches to twenty-seven different countries.

One reason why England has been able to get her hooks into so many potential and producing fields is that her oil companies have one hundred per cent support from their government. Save for the advocacy of the open-door policy the reverse is true in the United States. The British Foreign Office is an organized first aid to British trade everywhere. This team-work functioned admirably before the World War, but the relation is much closer since the Armistice.

The war brought all governments into intimate contact with industry. Stern necessity was the mother of the alliance. In England and France particularly, the wartime control for the purchase and distribution of essential war materials and commodities did not terminate with the advent of peace.

The activities of the British Government in petroleum prompted the French to adopt a Government oil policy, with the result that a Government Department was established for the purpose of lending every possible aid to French nationals in developing petroleum production. One of the first steps taken in the interests of the national defense was to make it incumbent on all importers and distributors of petroleum products in France to carry a certain reserve stock at all times in the country. The Department also controls and supervises the mixing of a part of the French alcohol output with gasoline which is sold as a national fuel.

The Department has in process of organization a French national petroleum company in which the Government, and practically all the local French producers, refiners, distributors, and important banking groups will be stockholders. Eventually this firm will take over the French interest of 25 per cent in the Turkish Petroleum Company, Ltd., secured for France as a result of the San Remo Agreement.

England has a conspicuous war hangover, so to speak, which bears directly upon the purpose of this chapter. I mean the institution officially known as His Majesty's Petroleum Department. It is the successor to Petroleum Control, and owes its inception to the technical knowledge and organizing genius of Sir John Cadman, who was Oil Controller during the conflict which shook the world. It is today the mainspring behind much of the British oil advance throughout the globe.

The Petroleum Department is a branch of the Board of Trade. In the United States a board of trade is usually like the average commercial club in that it is the prize booster of the town in which it happens to be located. The British Board of Trade, on the other hand, is a government ministry, whose president—as he is called—sits in the cabinet, and whose power and authority extend wherever the British flag flies. Among other things it is the overseer of the British merchant marine and sends trade scouts everywhere.

The Petroleum Department is full mate in commercial exploitation and we may well heed its constructive activities. Its principal functions are to act as adviser in petroleum matters to every branch of the government, to grant concessions for all oil developed within the British Empire; and to advise and to assist British oil companies in procuring concessions and carrying on work and trade in other countries. Under its authority all foreign nationals are debarred from owning or operating oil-producing properties in the British Isles. Furthermore, there can be no prospecting for petroleum in the United Kingdom save for the Board of Trade or the Minister of Munitions, or persons authorized by them. Thus the fine art of exclusion from her domains which England so successfully practices abroad has its beginning on her native heath.

The story of oil development in the British Isles, or rather the beginning of it, serves to uncover the existence of various deposits, but mainly to introduce one of the first, as well as one of the greatest, of British oil pioneers overseas, Lord Cowdray.

Oil has been known in England since the seventeenth century. Most of it is in the Midlands. With the development of coal mining the seepages naturally become more pronounced. Several coal shafts have been submerged

with petroleum. Nearly half a century ago a modest attempt was made to distill kerosene from this crude flow, but there was no organized movement to develop the industry until the Great War. Behind this lack of enterprise at home—it is in sharp contrast with British oil initiative overseas—was the manifestation of a peculiarly typical phase of British character.

Any one of the score of surface oil formations such as have existed in England for decades would have launched a real oil boom in the United States and started a rush to the field. John Bull's temperamental equipment seldom admits of such emotion or action. In other words, it is not done. The Midlander said: "This oil has been here always and here it will stay. Why worry?" Besides, landowners were more concerned with coal leases than with oil rights, because coal was an established and traditional thing.

There was another and perhaps more illuminating reason which bears upon the world oil-speculative mania. Though the British practically ignored the commercial possibilities of oil in their midst, they were quick on the trigger to let loose at oil bubbles abroad. The merest mention of an oil field in Abyssinia—I employ the most remote and impossible area—invariably led to an orgy of stock buying. Any enterprise, whether fake or legitimate, that involved an expedition or stirred the imagination in some way, gulled the British pocketbook. The only real difference between the British and the American oil victim is that the Yankee requires no distance to lend lure and enchantment to the financial rainbow. He is perfectly willing to get stung at home.

For a full decade prior to the outbreak of the World War Lord Cowdray had been conspicuous in British oil enterprise in Mexico. Credit for the opening up of this field is divided between him and Edward L. Doheny.

Although his achievements are fairly well known to Americans, a résumé of them is part of this narrative. He was born Weetman Pearson and is the grandson of the founder of the famous firm of contractors who have installed notable public works in a half a dozen different parts of the world, including the East River tunnel at New York. Grandfather Pearson began his business career as a brickmaker and later expanded to building constructions in a small way. It was Lord Cowdray, however, who extended the business to its international proportions and added a whole new oil field as a side line. The way of it was this:

In the early days of the twentieth century Lord Cowdray was rebuilding the Tehuantepec Railroad, which connects the Gulf of Mexico with the Pacific Ocean. The country was rather desolate and the engineers had difficulty in finding fuel. Oil seepages were frequent throughout the section. So Cowdray conceived the idea of utilizing petroleum.

At that time Porfirio Diaz was president—in reality dictator— of Mexico. He had a big vision, and when the British baronet—he was then Sir Weetman Pearson—put the matter of oil development up to him he kindled to the proposition and offered all the territory contiguous to the railroad for exploitation, providing the Mexican Government got 10 per cent of the net profits.

Unhappily for Cowdray, no commercial oil was discovered in the area allotted by Diaz. The oil bug, however, was in his system and he leased huge domains to the north. He had expended $10,000,000 before he struck what might be called pay oil. When he did strike it he opened what was at that time probably the greatest gusher area anywhere. The result was the organization of the Mexican Eagle Company, which Cowdray afterwards sold to the Royal Dutch-Shell interests, which means

that they are still under the British flag and therefore a part of Britain's oil empire.

While he still owned his vast petroleum interests in Mexico Cowdray attacked the oil problem in the British Isles. The year was 1915. Already the Allies had begun to settle down to the stride of a long war and to feel the petroleum pinch. Lord Cowdray had viewed with regret the long neglect of oil opportunity in the Midlands, so he decided to smash tradition as a business proposition.

The specific field that Cowdray wanted to exploit was on the Duke of Devonshire's property. An oil lease in England was an unheard-of thing. The moment that Cowdray tried to get the right to drill he ran afoul of precedent.

Instead of a man-to-man transaction such as obtains in a similar deal in the United States, a group of solicitors has to be called in. Nearly everybody knows that in England you can scarcely draw your breath without invoking some legal assistance. We think we are long on certain forms of red tape in the United States, but we are infants compared with the British, who engage a solicitor for the enactment of the merest trifle.

Hence you will not be surprised when I say that by the spring of 1918 Lord Cowdray had not yet obtained his oil lease. Even with so long established a document as a coal lease, time is not the essence of the contract. The average period between the agreement on terms and the signing of a coal lease in England is eight years. In 1916 I heard about a certain coal lease on a large estate that had been pending for fifteen years and was still unsigned. Nor is there much likelihood of reform in normal times, because land ownership in England has become more or less a political issue, with the Labour Party and the extreme Radicals protesting against the payment of royalties to landlords on coal.

Meanwhile, to return to Cowdray's ambitions, the war grew on apace and England reached the point where the supply of gasoline was vital to the conduct of hostilities. Cowdray the oil magnate now became Cowdray the patriot. He placed all his resources at the disposal of the nation and asked the government to commandeer the oil areas under the Defense of the Realm Act, which was commonly known as DORA. Under this act the government could go to any extreme in the exploitation of property. The Crown therefore took the land necessary for nine well-sites. Seven were in Derbyshire and two in Staffordshire. Subsequently two additional sites were blocked out in Scotland.

Cowdray knew what he was talking about when he started his oil campaign. His chief geologist was A. C. Veatch, one of the best-known and most widely traveled of American oil experts. His technical adviser was Roderic Crandall, another American. Cowdray's oil principality in Mexico was made possible by American engineers. Veatch had prospected the whole Midland field, but his favorable report was received with skepticism by many so-called British oil authorities. One of them even went so far as to say that he "would drink every drop of commercial oil found in England."

Cowdray, however, had the government behind him, and in October, 1918—three years had elapsed since the negotiations had started—Veatch started to put down the first well ever bored in England. In December, after the Armistice was signed, oil was discovered.

Again British precedent interfered with traffic. Veatch wanted to shoot the well with nitroglycerin to accelerate the flow, but he was checked by a law which prohibited the transportation of nitroglycerin on the roads of England. I have devoted this space to the pioneer oil well in England to show how exploitation within

the United Kingdom has been impeded by delay and regulation.

That first well is still producing a ton of oil a day. In 1921 another well was brought in near Edinburgh by the Pearson interests, acting on behalf of the government. Oil development in the British Isles is not likely to expand on a large scale, because of the interminable legal complications involved. Besides, the Labour and Radical group is opposed to the payment of oil royalties to landlords in precisely the same way as it objects to royalties on coal land.

England obtains approximately 160,000 tons—1,200,000 barrels—of oil each year from Scotch shale. This is not a boring process, but is a mining and distilling proposition. Refined shale oil is largely used for illuminating purposes in Scotland where the residents seem to have become accustomed to its objectionable odor. The shale industry, which is chiefly located in the comparatively small area west of Edinburgh, is controlled by the Anglo-Persian Oil Company. There are extensive oil shales in various parts of the British Empire, especially Australia, and some day they are likely to become an important factor in the bigger British oil scheme.

This fumbling within the confines of the United Kingdom was more than offset by daring and courageous adventuring beyond the seas. We now come to the chapter of British petroleum penetration in which the Union Jack is planted amid historic environment, and which reveals a romance not surpassed in all the annals of American oil development. It means that we have arrived at the story of William Knox D'Arcy, patron saint of the Anglo-Persian Oil Company and perhaps the only man who wrested two huge fortunes out of the bosom of the earth. Some men strike it rich in gold, others in oil. D'Arcy achieved it with both. Each is an unusual narrative of picturesque performance.

To get the beginnings we must go to the little city of Rockhampton, the chief port of Central Queensland, where in the late '80's, D'Arcy, a New Zealander by birth, hung out his shingle as a solicitor. His principal clients were sheep grazers. Among them was a well-known character named Sandy Morgan, who owned a large ranch back among the hills. One day Morgan turned up in D'Arcy's office with a piece of quartz. To the solicitor he said:

"What is this stuff? There is a whole mountain of it on my place."

D'Arcy saw at once that it was gold quartz. He sent it to Sydney to be assayed, and when he got the report he knew that there was a fortune within his grasp. With Morgan he organized the Mount Morgan Mining Company. In exchange for his savings and his work as organizer, he took one third of the capital stock of £1,000,000, which had been subdivided into shares of one pound each. This was the inception of the famous Mount Morgan Mine, one of the world's wonders in gold production, which is still giving forth its yellow treasure.

In the late '90's, D'Arcy, who had continued his more or less simple life as solicitor at Rockhampton, decided that it was time for him to see the world and spend some of the wealth that was piling up. When he had amassed £100,000 he started with his wife on a sight-seeing trip. Before leaving, however, he gave instructions to his agents to sell a big block of his Mount Morgan stock in case it reached eight pounds a share.

The first stop that the D'Arcys made was in Egypt. They liked loafing so much that they stayed six months. When the Nile and its beauties palled on them they set sail for Italy, where again they lingered long. To get the full meaning of the extraordinary events that fol-

lowed you must know that when he left Rockhampton D'Arcy gave no hint of his itinerary. His associates therefore did not have the slightest idea of where he was for nearly a year.

From Italy the pair traveled by easy stages to Vienna. Here, in an old copy of the London Times, D'Arcy's eye chanced on a paragraph in the agony column requesting him to communicate with his bankers in London, where, so the notice specified, "he would learn something to his advantage." Even then he was loath to hurry, but at the instigation of his wife he proceeded to England.

At the London bank he said to one of the underlings, "My name is D'Arcy. I understand you have been trying to locate me."

Evidently the whole institution knew what was in store for him, because at the very mention of his name he was ushered into the office of the managing director, who was not only effusive but offered the New Zealander a stack of telegrams and letters a foot high, with the question, "What are your instructions?"

It developed that during D'Arcy's absence the stock in the Mount Morgan Mining Company had gone to seventeen pounds a share—his agents had sold all the way up the scale—and that he had £1,200,000—$6,000,000—to his credit in cash, and was getting richer every minute.

If this had occurred in a book of fiction you would almost say that it was impossible, yet it actually happened. This was the first big stake that D'Arcy drew out of the Mount Morgan Mine, and was the nest-egg with which he subsequently began his career as international oil operator.

D'Arcy was what Americans would call a good sport. It was part of his equipment as a big and breezy colonial. No sooner had he heard of the spectacular rise of Mount

Morgan stock than he said, "No share of gold-mining stock is worth seventeen pounds. I am going to reimburse every one of my pals who sold out at less than the top figure." It was no idle promise, for he expended more than £70,000 making up these deficits.

Most men would have been content to quit with the money that D'Arcy now had. Though he was a solicitor by profession, he was a prospector at heart. Mother Earth had been good to him with the gift of gold; he now sought to woo her again for the largess of oil. It was long before England had discovered her need of petroleum. At that time the only important out-and-out English oil company of any consequence—it was prior to the Royal Dutch-Shell combination—was the Burma Oil Company. Although he did not know it at the time, this organization was destined to come to his aid in a critical hour.

D'Arcy's problem was to find a potential oil field. The Burma Oil Company had India pretty well bottled up and the Shell people at that time were mainly transporters. Most of the petroleum was imported from the United States, Russia, and the Dutch Indies. D'Arcy wanted to identify his name with an oil enterprise that would be one hundred per cent British, and he succeeded, but in a part of the world where no one then dreamed of production in a big way. That part of the world was Persia.

Petroleum had been known and used in Persia and the adjacent regions of the Persian Gulf almost from time immemorial. The so-called slime used in the building of the Tower of Babel has been identified as bitumen derived from petroleum exudations. Bitumen, according to Herodotus, was also the mortar in the walls of ancient Babylon. Pitch was employed in the building of Noah's ark and is referred to in the Bible. The historic

religions of Persia used natural gas and petroleum for their temples in which the eternal fires, which were nothing more or less than burning oil wells, were worshiped. Just to show that there is nothing new under the sun, let me add that the old Persian shahs and the Armenian emperors exploited the petroleum resources of their region and quarreled over them.

In 1872 an attempt at modern development of the Persian oil resources began when a blanket concession for mining, railway, and banking rights for the whole country was given to Baron Julius de Reuter, a naturalized British subject. Russia, however, objected and the concession was canceled.

Right here you have one reason why Persia remained undeveloped so long, and for that matter why she is still a backward country. On the north she had the Russian bear with the uplifted paw that menaced all international interlopers in a domain that she had marked out for her own. The fact that Russians exploited Persia for political purposes while her rich resources lay dormant cut no figure. This is why China also lags at the tail end of the procession of progress. A more recent instance is the perversion of the German reparations into a political issue.

When England got a foothold in Persia she started the same Russian game of exclusion. Subsequently when Americans came along on a mission of development, they had—to paraphrase the famous Tennyson poem—"paws to the right of them and paws to the left of them." The combination of the Russian bear and the British lion was hard to beat. This, however, is a later story.

In the nineties there was some sporadic well drilling in various parts of Persia near the Persian Gulf, under the auspices of the Imperial Bank of Persia, which was founded by De Reuter and which had a concession to

exploit the precious mineral resources in the country. There were many difficulties in landing and transporting supplies. No commercial production was secured and the field was abandoned.

This leads to 1900, when D'Arcy conceived the idea of matching his gold achievement with a similar one in oil. He got in touch with many experts, but it was no easy task to find a field. Remember that in those days—it is less than a quarter of a century ago—the heart of the world had not yet been set on oil. It was the coal age. The United States, the Dutch Indies, and Russia were the great reservoirs of petroleum and nobody was especially concerned about the future supply.

Quite by accident D'Arcy came in contact with a young Persian named Kitabji, who told him that he knew of oil seepages in the northern part of his country. D'Arcy at once sent an experienced petroleum geologist to the scene, who prospected in two areas. One was north of Bagdad, close to the Turko-Persian frontier; the other in the general direction of Shuster and the country adjoining the Karun River. These places—they loom large today in British oil history—were at the two ends of an oil belt extending nearly 300 miles.

On the strength of the reports that he received D'Arcy decided to take the plunge in Persia. In 1901 he secured from the Shah of Persia an exclusive concession for the exploitation of natural gas, petroleum, and asphalt for the whole of Persia except the five northern provinces of Azerbaijan, Ghilan, Mazanderan, Asdrabad and Khorasan, to run for sixty years. These five provinces, by the way, are just now the objective of an interesting contest, with the Anglo-Persian and the Standard Oil Company of New Jersey lined up on one side and the Sinclair interests on the other. This also is a later story.

It was typical of D'Arcy that from the outset, and

NATIVES LAYING PIPE-LINE IN PERSIA

LOADING CAMELS WITH CASES OF OIL AT A PERSIAN REFINERY

for a considerable time afterwards, he went on his own. He organized the First Exploitation Company, with a capital of £600,000, which he largely subscribed himself. He began operations about 100 miles north of Bagdad and brought in two fairly good wells. The country was primitive, supplies had to be hauled on the backs of donkeys and camels, and there was no adequate port. To commercialize Persian oil it was necessary to have an outlet on the Persian Gulf, and this was an expensive business, for it meant a pipe line over the mountains.

Despite these handicaps, D'Arcy's operations began to attract foreign oil interests. Chief among them were the Germans, who were commercially colonizing Turkey and launching the offensive which had for its object the economic conquest of the whole Near East, in which the Berlin-to-Bagdad Railway—the Teutonic spearhead aimed at India—was an important agency. They had already secured the rights for the Anatolian Railway, and they too, yearned for an outlet to the Persian Gulf by way of the Tigris. Behind the German scheme was the Deutsche Bank, which now tried to buy the D'Arcy Persian concession.

Instead of selling this Persian concession to the Germans, D'Arcy began to contest with them for the oil riches of Mosul and Bagdad, which were then a part of the old Turkish Empire. A duel between the British and the Germans developed, while subsequently the Dutch became involved in the struggle. Subsequently, as I pointed out in the preceding chapter, all the conflicting interests were mobilized in the Turkish Petroleum Company. The point to be emphasized is that D'Arcy not only held on to his Persian grant, with all the German overseas trade organization, which included the German Foreign Office, arrayed against him but his persistency in Mesopotamia enabled the Anglo-Persian Oil Company

later on to dominate the Turkish Petroleum Company-the key to Mesopotamian oil riches.

D'Arcy found that running a sort of personal oil show was a costly luxury. By the end of 1903 he had expended more than £300,000—$1,500,000—out of his own pocket and he had only two moderate oil wells to show for it.

In the course of time, the British Admiralty, thanks to the pounding of Lord Fisher, woke to the value of oil as fuel for the navy. Fisher saw the huge petroleum sources in Russia, America, and elsewhere becoming more and more firmly held by non-Britishers. He believed that inevitably England would have to fight Germany, and he was also convinced that when that time came, oil, and not coal, would stoke the fighting fleets. He therefore urged the Admiralty to corral an adequate and—what was equally important—an all-British source of liquid fuel. It was the first step in what later became the famous Admiralty oil deal which put the British Government into the petroleum business.

During all this agitation D'Arcy's personal fortune was being drained more and more in the Persian venture. Foreign interests were pressing hard for an association with him and ordinary business discretion dictated that the overhead be divided. He tried to sell his concession to the Standard of New Jersey at one stage of his dilemma. The Admiralty asked if he would defer taking on any outsiders until some independent British interest could negotiate with him to keep Persia under the Union Jack so far as oil was concerned. He agreed, and the Burma Oil Company came forward and formed the Concessions Syndicate to develop that part of the D'Arcy concession not being operated by the First Exploitation Company.

With this transaction you get the outpost of the long series of interlocking interests which today give England such a hold on so many foreign oil fields. Lord Strathcona

was the dominating figure in the Burma Oil Company, whose policy was "India's resources for the British." When you know that this concern was an all-Scotch corporation you also know that it let nothing slip through its fingers.

In Strathcona you have another of the militant figures in British oil development. The second son of a Highland merchant, he went out to Canada when he was eighteen, and was appointed a junior clerk in the service of the great Hudson's Bay Company. In the wilds of Labrador he traded with Indians and trappers and there laid the foundation of a business experience that stood him in good stead when he became the first of the Canadian railway pioneers. In his early days he married an Indian. As Canadian High Commissioner to England, Strathcona did more perhaps to tighten the ties between the mother country and her American dominion than any other man.

When the Burma Oil Company came to the rescue, the D'Arcy concession was saved for the British. Strathcona, like Lord Fisher, favored an Admiralty control of naval fuel, but changes in the government, and a policy of retrenchment left the matter in abeyance for six years.

Meanwhile D'Arcy was plugging away in Persia. In 1907, and in the section locally known as Maiden-i-Naftun, which means Field of Oil, and adjoining the ruins of an ancient fire temple, the first gusher was struck with such force that it wrecked the derrick. This well, which is still flowing, may be said to have christened the British oil conquest of Persia, because it is the center of what is now a great producing region.

More than this, it led to the imposing merger of interests which soon became incorporated as the Anglo-Persian Oil Company, with Lord Strathcona as chairman of the board and D'Arcy a director. The original capital-

ization of £2,000,000 has been increased from time to time until it is now £24,075,000.

With the various details of organization we are not concerned, save the facts that the Anglo-Persian Oil Company linked all the D'Arcy oil connections; that the Burma Oil Company held a large percentage of its shares and guaranteed dividends for the first five years; and that it consolidated British authority and operation in all Persia save for those five northern provinces. It means that England has a Persian area of about 500,000 square miles for exploitation. The probable oil-bearing territory in it is estimated to be 600 miles long, thus making it probably the most extensive oil field in the world.

Nor is it necessary to dwell upon the difficulties of development in that remote area, where savage tribesmen abounded in the early days of operation. The field is 145 miles from the Persian Gulf and a pipe line had to be set down to the seaboard. A huge refinery was built near the mouth of the Karun River. During the World War the British Expeditionary Force in Mesopotamia was supplied from this plant.

What does concern us, however, is the expansion of the Anglo-Persian Oil Company everywhere and its ramifications that have from time to time come in conflict with American interests. First in importance, historic and otherwise, is the alliance between the company and the British Government. John Bull does not often take a hand in business, but when he does he lines up something strategic. Just as the Suez Canal deal engineered by Disraeli brought India nearer to England, so did this oil transaction guarantee one of the essential sinews of war to the empire.

As I have already pointed out, Lord Fisher roused the British Government to the realization that an adequate supply of oil for the navy was an essential to victory in

the inevitable war with Germany or any other power. The matter had been pending for six years, but the hour for action was at hand.

When Winston Churchill reached the post of First Lord of the Admiralty in his progressive journey through the list of British cabinet jobs, he was quick to grasp the significance of the naval fuel problem. He announced that the Admiralty was confronted with oil price movements which he believed to be part of a gigantic attempt to corner the market and control output. He further pointed out the necessity for the navy to secure adequate oil supplies at reasonable cost, particularly because developments in the use of liquid fuel had resulted in a construction program including numerous new battle and scout cruisers which called for oil as the imperative fuel. The naval race between Britain and Germany was on.

All the while development in Persia was progressing on a tremendous scale and the Anglo-Persian needed capital to carry out its pretentious program. Powerful Dutch and other alien interests made offers to help at the price of control of the company. At this juncture Lord Strathcona died, and soon after Mr. Charles—now Sir Charles—Greenway, who had been conspicuous in the industrial development of India, was made chairman of the board in succession. He had previously been managing director. He conceived the idea of having the government take a large interest in the Anglo-Persian, thus securing an adequate oil supply for the navy and at the same time obtaining the necessary new capital for exploitation without surrendering any rights to foreigners. By the terms of the proposed agreement the government was to invest £2,200,000 in the purchase of shares, thus obtaining control.

When this proposition was put up to the British Government it did what any cautious business man would

do. It asked the Anglo-Persian people, "Have you any oil?"

The Admiralty had forestalled this query and sent a commission headed by Admiral Slade and including Sir John Cadman to Persia to report on conditions. A big gusher had been brought in and thirty more wells were in operation. The investigating committee reported that the concession, if judiciously worked, would safeguard the fuel supply of the navy.

Churchill now had the ammunition he needed. In presenting his argument for a government oil supply he maintained that the Admiralty was being "squeezed by all the oil trusts, regardless of nationality." His project encountered many obstacles born of natural British antagonism for so radical a national undertaking, and also the resistance inspired by alien oil interests.

One of the obstacles, it is interesting to relate, was Sir Henri Deterding, who previously had a contract with the Burma to market its products in excess of the quantities sold in the local Indian market. It appears that the Burma had practically entered into an arrangement whereby the Royal Dutch-Shell group would advance the money needed by the Anglo-Persian instead of the British Government. After the contract had been drafted the Burma people took it to Winston Churchill, then in the Cabinet, and told him that unless he was prepared to advance the money either as a loan or for the purchase of stock, and take the fuel oil output of the Anglo-Persian over a period of years, the latter would have no other alternative but to go ahead and sign up with the Royal Dutch.

Churchill, with characteristic impulse, saw the value of the argument. Sir Edward Grey, then Secretary of State for Foreign Affairs, not only supported him but declared that unless the government joined the Anglo-

Persian the company and its valuable possessions would be absorbed by those who opposed the contract. He had the Royal Dutch in mind.

The fateful year of 1914 was well under way before the Bill for Acquisition of Capital in the Anglo-Persian Oil Company passed through Parliament. Curiously enough it received the royal assent on August tenth, or exactly six days after England entered the World War. Lord Fisher's prophecy came true, because the empire was not only at grips with the Teuton but, moreover, it had lined up an oil reserve for the struggle. A more unromantic but equally practical fact was that henceforth when oil companies competed with the Anglo-Persian they also competed with the British Government. It was a selling-point against foreign oil that the Anglo-Persian organization was quick to capitalize.

This historic deal not only put the British Government into the oil business, which in itself was without precedent, but it also gave the Government actual control. It has a majority of outstanding ordinary shares, which have two votes each. Preference shares have only one vote for five shares. In addition to this voting power the contract provides that there must be two ex-officio directors on the board of the company, one representing the Treasury and the other the Navy. These directors may veto any act of the board of directors or of any committee.

At the close of the World War the Anglo-Persian Oil Company embarked on a scheme of world-wide expansion. It had an agency in the shape of the D'Arcy Exploration Company, formed in 1914, which could prospect anywhere. With the British Government as a controlling factor—the Admiralty in 1919 acquired an additional £3,000,000 in ordinary shares, which brought its total investment up to £5,200,000—it now began to

plant the Union Jack wherever oil was possible, and in some spots where it was not. The company became both the voice and the instrument of empire in its determination to annex all petroleum-bearing territory not hitherto preëmpted. When Americans sought to prospect in any one of a dozen fields they were met by the sign, Reserved for Britain.

First let us take the Anglo-Persian activities in Europe. While the war was in full swing the company widened its scope at home by acquiring from the British Public Trustee, who corresponded to our Alien Property Custodian, the controlling interest in the British Petroleum Company, the Homelight Oil Company, and Petroleum Steamship Company, which had been previously held by the Deutsche Bank in Germany. Through this transaction the concern not only became the second-largest oil distributor in the United Kingdom but also greatly increased its tanker fleet. Before the ink was dry on the Armistice it began the construction of a huge refinery in Wales which has cost £8,000,000. I have already referred to the acquisition of the Scotch oil-shale field.

On the Continent the company's grip is tightening. In coöperation with important French financial groups it has formed the Société Générale des Huiles de Petrole to act as a marketing company in France and French colonies under an exclusive contract. It is also constructing a refinery in France to refine imported and native crude oil.

After Russia, the richest oil field in Europe is Rumania. Here the Anglo-Persian has a large interest through a separate British holding company in the Steaua Romana, the most important oil organization in Rumania. There is also a British Steaua Romana in which the Anglo-Persian and the Royal Dutch have an equal interest.

The Anglo-Persian Oil Company also controls the oil fields of Transylvania, formerly a part of Hungary and now within Rumanian territorial confines. Through its Hungarian Oil Syndicate the Anglo-Persian has a contract with the Hungarian Government for the exclusive oil exploration there. It also has an exclusive concession from the Greek Government covering all petroleum rights in Eastern and Western Macedonia for five years, and is negotiating for a similar concession in Albania. It also operates in Spain, Norway, Denmark, Belgium and Jugo-Slavia. In fact, the only European oil-belt after Russia that has escaped the Anglo-Persian is in Galicia, where the French are in control.

Asia is, of course, the bulwark of Anglo-Persian overseas power, with the vast Persian concession securely nailed down. With a subsidiary, the North Persian Oils, Inc., it holds claims to oil rights on three and one-quarter of the five Northern provinces outside the D'Arcy grant, through the so-called Khostaria concessions granted by the Persian Government to a Georgian named Khostaria.

An interesting fight has developed over these concessions. The Persian Government repudiated them and invited the Standard Oil Company of New Jersey to take a concession on all five of the provinces. Protest was lodged by the British owners, and the Standard, not wishing to be a party to the repudiation, refused the offer unless the prior grants were recognized through a joint arrangement between the Standard and Anglo-Persian for an equal ownership of the new grant under Standard management and control. Later the Sinclair interests began negotiations with the Persians for the same concessions. At the moment I write no one seems to know just who will eventually control these Northern concessions. They have been offered to the Sinclair Consolidated Oil Corporation contingent upon their

securing for the Persian Government an American loan of $10,000,000.

If production is found in North Persia, the only practicable way of moving it out to market is through Russia, by tanker on the Caspian to Baku, and thence by pipeline to Batoum on the Black Sea. The routes to the Persian Gulf, to Mesopotamia, and to the Black Sea, without entering Russian territory, are entirely unpractical for pipe-line construction. Therefore, from the standpoint of its proximity to the world's markets, this North Persian area is much more remote than a great many other potential oil-producing areas.

Through the Turkish Petroleum Company, the Anglo-Persian controls the rich potentialities of Mesopotamia where American interests have been offered a share. This offer, however, was made only after the American State Department had made an international issue out of the closed-door policy for this region, formulated in conjunction with the French at San Remo. The D'Arcy Exploration Company also has the oil rights for Arabia and Palestine.

To indicate the remaining activities of the Anglo-Persian means to catalogue the rest of the oil-bearing world. It has options on concessions, or is actively operating in Australia, where it has built another immense refinery, New Zealand, Borneo, New Guinea, Canada, Mexico, Trinidad, Nova Scotia, Newfoundland, British Honduras, the Argentine, Peru, Venezuela, Egypt, the Gold Coast in British West Africa, Portuguese East Africa and the Union of South Africa. Through an American corporation it controls a Texas terminal to handle the output of its Mexican fields, and even owns a shipyard for the construction of tankers on the Hudson River. When I say that it carries on through exactly sixty subsidiary or affiliated companies which operate in

twenty-seven different countries you get some idea of its extent.

If by any chance the Anglo-Persian has overlooked an oil bet anywhere it has fallen within the bailiwick of its no less potent mate, the Royal Dutch-Shell group. This combination is Dutch, however, so far as the production end is concerned, and because of its extraordinary power and extent, which penetrates even to the United States, it will be dealt with fully in the next chapter.

While these two European aggregations—the Anglo-Persian and the Dutch-Shell—are individually potent and far-reaching in scope of operations, it is not unlikely that they will be merged, thus bringing about an amalgamation that will be unique in oil history. It consists of the union of the Anglo-Persian, Dutch-Shell, and Burma interests.

The first steps consisted of negotiations for the purchase of the Admiralty interest in the Anglo-Persian by the Burma. A subsequent development was to fuse with the Dutch-Shell on a basis that would give the British control. The scheme was that the Burma and Anglo-Persian have 21 per cent; Shell, which is also British, 33 per cent; and Royal Dutch 46 per cent. If consummated it means that the Dutch would be obliged to surrender the oil leadership of Europe to the British.

Everything was favorable for the consummation of the deal when the Labour Government came into power and squelched it. Ramsay MacDonald and his associates in the Cabinet felt that it would be unwise to sell the Government shares in the Anglo-Persian. Despite the check to the proposal, there is a strong feeling in England that with the overthrow of the Labour régime the matter will be taken up again and favorably dealt with.

The ends to have been served by the acquisition of the Admiralty interests in the Anglo-Persian were officially set forth as follows:

1. The assurance of naval supplies at all times and under all conditions would have been immeasurably increased.

2. British economic interests in the oil businesses of the world would have been considerably strengthened.

3. Great oil enterprises in every oil field in the world would have been permanently settled in London, and, having regard to the vast expenditure involved in conducting an oil business, the importance to British industry in general of this change will be readily appreciated.

4. The Government, while retaining and strengthening their fuel oil contract, would have realized their investment in the Anglo-Persian Oil Company at a profit far in excess of present market values, and would have been enabled to withdraw from the very speculative enterprise of oil development.

5. The Government would have freed itself from the international embarrassment resulting from its large financial interest in a competitive international trade.

In defending the plan for the consolidation of interests, Sir John Cargill, Chairman of the Burma Oil Company, made this illuminating statement:

"The policy of the British Government in originally making their investment in the Anglo-Persian Oil Company was dictated by an appreciation of the vital importance to the British Empire of securing British control of important oil resources at all times. But there are obvious weaknesses and dangers—geographical, geological, and political—in allowing the British Navy to place so great a reliance upon a single oil field situated in Central Asia. The proposal to sell these shares to the Burma Oil Company in such a way as to secure British

control of a new group to consist of the Burma, the Shell, and the Royal Dutch companies, had for its main object the removal of these weaknesses and dangers. The intention and consequence of the proposal would have been that the amount of British-controlled oil on which the Navy supplies were based would have been vastly extended. Moreover the great Royal Dutch-Shell organization, trading in every quarter of the world, which is now controlled in Holland, would under the new grouping be controlled in London.

"Simultaneously with this great enhancement of British importance in the oil affairs of the world, the British Government would have been relieved both of the domestic and of the international embarrassments inseparable from a State holding shares in an oil company actively competing throughout the world both for markets and for concessions. It would have ceased to be interested as a shareholder or in any other capacity in the oil business."

While this huge merger will help to consolidate the British international oil position, there is a strong impression among American petroleum men that the Dutch will not abdicate their present petroleum power which is so dominant outside the United States. When you read the story of the career of Sir Henri Deterding in the next chapter, you will discover that he is not the type of individual to brook any degree of supervision. Besides, the small preference share issue, which really controls the Royal Dutch, can only be owned by Dutch subjects. Be this as it may, it is obvious that Britain is awake and alive to every opportunity for authority in the oil world.

This revelation of the world-wide activities of the Anglo-Persian Oil Company naturally inspires the question, How do they do it? In the answer are dis-

closures that may well give food for thought to every American.

The first factor is the astonishing resource and enterprise that Britain has displayed in developing her oil domains. While Americans were lulling themselves into a false security over their own potentialities, John Bull was up and doing everywhere. Incidentally he was using American oil while he conserved and expanded his own fields.

The second agency that Britain has employed to the limit is the force of her government. Nor is this entirely due to the Admiralty interest in the Anglo-Persian Oil Company. It is worth emphasizing again that wherever the British oil pioneer has gone, he has had his government squarely behind him. This teamwork was effective in non-British countries, but it has reached its apex in Crown possessions.

This brings us to the exclusion policy practiced by Britain, which is an illuminating indication of how the empire works on the job. For more than a quarter of a century American oil interests have been trying to break into India, but they have been up against a solid wall. As far back as 1884, through the medium of a royal proclamation, Britain clamped the lid down on Indian oil so far as any other nationals were concerned. It contained the following provisions:

> Whereas, on the report of Sir Charles Bernard, Chief Commissioner of Burma, through the Government of India to the Secretary of State, it is stated that the oil fields in that country are rich and extensive and that in after years would be a national benefit to the Province. It is therefore declared that the Secretary of State in Council has deemed it necessary, with the consent of Her Gracious Majesty, to protect the said oil fields from foreign enterprise and invasion, and the protection of the interests of that Province constitutes the issuing to the Government of India this order for the security of the oil fields, whereby no Trust or Corporation connected

with Pierpont Morgan or J. D. Rockefeller, or any Company belonging thereto, be permitted any facilities or interest in the oil fields of Burma.

Whereas, the war waged by the Oil Trust in the United States of America against other small representative Companies is fresh in the minds of man, Her Gracious Majesty has decreed in pursuance of the said acts of the Oil Trust to forbid any interest or concessions whatsoever to any Foreign Company, Corporation or Trust other than any Company which may be formed in England or the Colonies, or in any part of the British Empire approved by the Secretary of State, facilities for prospecting, refining, operating, working, storing and winning of Mineral Oils in the Province of Burma.

The specific allusion to the Rockefeller interests is because at that time, the original Standard Oil Company was master of the American oil situation. Its name was becoming synonymous with American oil.

This proclamation has been the cause of a controversy between the British and American governments. The British maintain that it is spurious and in support offer the fact that, as originally reproduced, it was countersigned by the Marquess of Salisbury as Secretary of State for India. At that time the Earl of Kimberley held this post. Those who maintain the authenticity of the document, and they include all the American oil companies in the international field, allege that in the first copy, made from the British archives in India, the name Salisbury was substituted by mistake for that of Kimberley. The one point made in the British contention that the proclamation never existed was the Salisbury signature which is easily explained.

Regardless of the document in question there is ample evidence to prove the British closed-door policy in India. When the Standard Oil Company of New York, for example, sought to get a concession to drill for oil in Burma, the most valuable field in India, it was faced by the following edict, technically known as

Resolution 115 of the Government of India, which contains these words:

> No native well-owner of the Burma oil fields shall sell, lease transfer, mortgage or assign any well or well sites to any foreign Company, Trust, or Corporation without the approval of the Government of Burma, under the penalty of forfeiture and confiscation, and the Government of Burma shall refuse all applications for prospecting or refining from any concern connected with Pierpont Morgan or John D. Rockefeller, or any Company connected thereto.

This edict was quoted in a formal protest against British exclusion made to Secretary Hughes last year by the Standard Oil Company of New York. It is worth noting that some of its phraseology strongly resembles that of the royal proclamation whose authenticity is denied by the British.

The Standard Oil protest reproduced another dictum of the Government of India which is:

"Oil-winning concessions are granted under the mining rules of India; but petroleum is included in what is known as the reserve of mineral concessions which, as being resources of national importance, are granted only to British subjects, and to companies mainly British in constitution."

As a result of the British policy in Burma no American Company has been able even to erect a warehouse, to say nothing of a refinery, within its confines.

If any further doubt exists regarding the British exclusion attitude it is removed by a memorandum relating to the oil fields of India, and particularly those of Burma, issued by the British Foreign Office on April 21, 1921, which declared that "prospecting or mining leases have been, in practice, granted only to British subjects, or to companies controlled by British subjects."

The same memorandum—it is one of the exhibits in the report of the Federal Trade Commission on Foreign

Ownership in the Petroleum Industry—states that in Trinidad, a British possession rich in oil, "leases of Crown or alienated lands must be to British subjects or British-controlled companies." Identical restrictions apply to British Borneo, Nigeria, British Guiana, Egypt, and other British protectorates and possessions. In British East Africa all aliens are excluded, while in the Gold Coast Colony the regulations provide that concessions of all kinds shall be granted to British subjects or British-controlled concerns.

Nor must that tidy little document—the San Remo Agreement—be forgotten in this examination of the British exclusion program. Though it let the French and the Dutch in on Mesopotamia and Rumania, it was careful to keep British control of every area involved neatly sewed up. Moreover, it gave the British the right to construct pipe-lines and railways for the transport of oil from Mesopotamia and Persia, through French spheres of influence, to ports on the Eastern Mediterranean.

In an oil memorandum issued by Lord Curzon, British Secretary of State for Foreign Affairs, which was transmitted to the British ambassador at Washington, he recounted Britain's huge oil consumption and specified that 60 per cent of her imports came from the United States. He also brought out the fact that during the war the British imports of petroleum were as high as 5,160,000 tons. In commenting on these figures he said:

> The figures which have been quoted indicate that although the consumption of Great Britain per head is only about one-sixth of that in the United States, her requirements are, nevertheless, very large, and are at present met almost wholly from foreign countries at an extremely high cost. Much has been written as to the so-called closed-door policy in the British Empire, but even if such a policy was in force it would surely not be difficult to find arguments in its favor in view of the very serious position of the British Empire as regards petroleum supplies.

In sharp contrast with these British restrictions is the open-door policy of the United States. Save in the case of public lands the nationals of any foreign country are free to own and operate oil areas within our confines.

These disclosures of British oil penetration and exclusion are made not with any desire to provide material for the anti-British propagandists. But facts are facts. As I remarked in a previous chapter, blood may be thicker than water, but oil is not. In the end it means that though sentiment may sometimes be an admirable first aid in cementing political relations, it is always a stumbling block in business. No nation realizes this more than England, as her whole oil procedure shows. It is industrial imperialism raised to the *n*th degree.

CHAPTER III

THE DUTCH COALITION

At a semicircular desk on the fifth floor of a modern office building in St. Helen's Court, Great St. Helen's, just off Bishopsgate, in the financial district of London—which is known as the City—sits a stocky man of about sixty with close-cropped grey hair, alert black eyes, whose swarthy face strongly suggests the Oriental. His manner is aggressive, dynamic. At his left hangs a huge map of the world with red markings on nearly every country, and indicated steamship lines that traverse the Seven Seas.

Both the desk and the map are typical of the individual who dominates them. He can reach out for everything on the table where he works, while the map is the biography of a similar achievement which circles the globe. He is Sir Henri W. A. Deterding, master mind of the Royal Dutch oil combination, and as such is the most powerful single force in the petroleum business.

Deterding has been called the Napoleon of Oil, the Rockefeller of Europe, and various other names, some of them not altogether fit to print; but by any name this Bismarck of business remains the human mainspring of a commercial conquest not matched perhaps in any other activity. The story of Deterding is the story of the Royal Dutch, and this narrative in turn is the record of the building up of a monster consolidation of producing, refining, and transportation interests that controls one-twelfth of the world oil industry.

Significant as is the British oil advance it is not in some respects so vital a phase of the world struggle for

oil as the Dutch offensive. The reason is that the Dutch had tied up the British as partners and thus operate under two flags. Deterding, for example, is still a subject of the Queen of Holland, though he has a British title. He not only uses it for all it is worth, but has the backing of His Majesty's government wherever he penetrates. When it is bad business to invoke British exclusion of any interloper in his oil domain he can put up the Dutch bars. This procedure is a hint of the resource of the man whose rise to power and fortune is a real romance of self-made success.

The first fact that stands out in the appraisal of the Dutch oil empire is that one of the smallest countries has one of the strongest grips on the industry. This, however, should cause no surprise to those who know the overseas history, past and present, of the tiny kingdom of canals and dikes.

Like those Dutch fleets of other days that vied with the Portuguese and the British for the stewardship of the seas, the Dutch trade vision encompasses all lands. Holland's money is invested in American, British, French, and was at one time in Russian securities, while the international financial prestige of Amsterdam ranks with that of Berlin and Vienna in the great days before the World War. Rotterdam, as most people are aware, has always been the rival of Hamburg and Bremen as a world port.

The keenness of the Dutch business mind is proverbial. It led Canning to indite his famous epigram which reads:

> In matters of commerce the fault of the Dutch
> Is giving too little and asking too much.

By the time you reach the end of this chapter you will probably believe that the couplet was inspired by a Dutch oil deal.

Photo by Marceau

SIR HENRI W. DETERDING
Head of the Royal Dutch and the European Oil Colossus

Just as England's insularity was the means to her might, so has Holland's peculiar geographical situation made it absolutely necessary for her to regard the world as her field of expansion. Like Switzerland, Holland is the nation for peace. Hence The Hague as the seat of the International Tribunal. Bang up against Germany and Belgium, the Dutch, with a toy country, had to look to the sea as their ally, and ally it has been. They had to have colonies, and because of them they became conspicuous as factors in oil.

It was in the sixteenth century that the Dutch, having thrown off the yoke of Spain, and still smarting under Hispanic intimidation in various quarters, sought to solve the riddle of the route to the East with its fabled spice and treasure. This they did through the daring of Cornelius Houtman, who landed in Sumatra, where he broke out the Dutch flag and annexed the first of what is now known as the Dutch East Indies. They also comprise Java, part of Borneo, Western New Guinea, and various smaller islands. Though these territories are rich in natural resources, none has proved quite so valuable as petroleum. Sumatra was not only the beginning of the Dutch colonial structure but it was also the place where Holland first dipped her hands, so to speak, into oil in a big way.

Unaware of the rich potentialities underground, the Dutch dedicated their first exploitation of the East Indies to tobacco and coffee. In the late '80's a tobacco planter named De Ruyter Zylken discovered some oil seepages near his estate in the Langkat District of Sumatra and obtained a concession for the area from the reigning sultan. Lacking capital for development, he persuaded the Dutch East Indian Government to lend him some engineers, who started operations and brought in a well which produced fifty barrels of high-grade oil in the

first three days. Later on it produced 300 barrels a day. There were no storage or transportation facilities, so a government road was built from the well to tidewater which was about five miles away. In the meantime the well, to use the technical phraseology, flowed open. From this well sprang the vast Royal Dutch enterprise, as you shall shortly see. Meanwhile oil was discovered in Java and in Borneo. A few companies were organized for production and refining in a small way.

The East Indies Government woke up to the commercial possibilities of oil and sent a man to the United States to study production methods. On his return he tried to get the authorities to drill as a government proposition, but failed. This man now started on his own and located a well in Java.

When the Twentieth Century dawned the oil business in the Dutch Indies was on a par with the industry in Pennsylvania in the first part of the sixties. The presence of petroleum was known, production was scattered, and no coördinated attempt had been made to operate on a large scale. The time had come, however, when a new era was to begin. The first of the significant personalities appeared on the scene.

For some years a big-visioned colonial named J. B. August Kessler, who was half Dutch and half German, had been studying the oil possibilities of the East Indies. He was director of the firm of Friedman van Kerchem, which traded in Dutch East India products, with headquarters at Batavia. In the course of his work he had to spend a good deal of time traveling back and forth between Holland and her colonies.

Convinced of the world's future need of oil, and satisfied that Sumatra, Borneo, and Java had a sufficient store, he organized at The Hague in 1890 a company with the following pronunciation-proof name: Koninklijke

Nederlandsche Maatschappij Tot Exploatatie Van Petroleum-bronnen in Nederlandsch Indie. Translated into English, this avalanche of words means Royal Dutch Company for the Working of Petroleum Wells in Dutch East Indies. It is more commonly referred to as Royal Dutch. The initial capitalization was 1,300,000 gulden, or about $520,000.

The company acquired the original De Ruyter Zylken Sumatra concession for what then amounted to $150,000. This was the first transaction of the Royal Dutch, which today owns, controls, or is affiliated with exactly 125 different companies throughout the world, whose total capitalization is nearly $1,000,000,000.

Although the actual relationship between the Royal Dutch and the British Government has never been clearly defined, one thing is certain. Ever since its start the parent company has been Dutch-controlled. An interesting revelation is that the Dutch royal family, which is the thriftiest titled line in the world, has always owned a big block of stock. One of the first stipulations was that the control of preference shares must not pass out of Dutch hands. The company's immense pull with the British Government comes from its well-known association with the Shell interests, of which we shall soon treat.

Soon after the incorporation, Kessler was made managing director of the company, and what came to be known as the Kessler policy began. It was summed up in the one word "absorption." Kessler saw various small and struggling interests trying to produce, refine, and transport oil in a retail way. He was a wholesaler by instinct, so he began to annex those companies and at the same time lease new concessions in Sumatra, and later on in Java. To carry on the exploration work meant penetration into jungle country infested with hostile

tribesmen. More than once the well drillers were attacked and native workmen killed.

The first two years of the Royal Dutch were more or less precarious. Considerable sums were spent on refineries and pipe-lines. This meant new capital, and profits were meager. Kessler, however, was undaunted. He saw immense possibilities for oil consumption in the Dutch Indian population of 50,000,000, while not so very far away lay the great domain of China, with her 400,000,000 people. He kept on increasing output so that by the beginning of the third year of the company's life the monthly output of case oil had increased from 3,000 to 11,000 cases. This oil had to be sold. The sales wizard was in waiting.

Kessler had begun to look about for a worthy associate and soon he found him. One day at Batavia, where the main colonial office of the Royal Dutch had been established, an acquaintance said to him, "There is a bright young Dutchman at Penang named Deterding who has a big future. You ought to know him."

Kessler sent for the young man in question and found that he was an assistant manager for the Netherlands Trading Company. Curiously enough, Deterding had also been studying oil. As a junior clerk he had sold kerosene lamps across the counter and he believed with Kessler that oil was the one big bet throughout the whole Far East. Kessler engaged him as inspector. The year was 1892. At once Deterding displayed an almost uncanny instinct for oil. He seemed to know just where to put down a well or set up an installation. Before long he was an important person in the sales department.

Since Deterding is such a conspicuous figure in the drama of Dutch oil, let us at this point, disclose his antecedents. He is the son of an obscure Amsterdam sea

captain. For five generations his hardy forbears sailed the seas. When his father told him that he was expected to follow the family calling he objected and said, "I want to go into business."

Shortly after leaving public school he became a messenger in an Amsterdam bank and worked his way to a chief clerkship. At twenty-two he realized that he was likely to be anchored at a desk for the rest of his life. He made a change that eventually brought about a revolution in the oil industry.

Then, as now, the Dutch Indies beckoned to the youth of Holland. If you will examine the careers of any one of the militant Dutch captains of capital—and there are not a few—you will find that with few exceptions they got their first training in the Dutch colonies. What the historic East India Company was to England in that bygone and spacious era, so is the huge Netherlands Trading Society the kindergarten of Dutch commerce today. In lieu of an organized similar institution for Americans, we have had to depend upon the country store, where men of the type of the elder Rockefeller, Henry H. Rogers, Russell Sage, and Thomas F. Ryan got their business start. Out of that rigorous school of the Netherlands Trading Society came such commercial giants as C. J. K. Van Aalst, who is now managing director of the company; H. Colijn, head of the Batavia Oil Company and one of Holland's mightiest financial figures; the late J. T. Cremer, the Marshall Field of the Netherlands, and many others. But the greatest of all is Deterding, who left the Amsterdam bank to make his fortune in the employ of the company in the East.

The fact that Kessler's attention was directed to him showed that he had made good in the new field. He began, as I have already pointed out, as a junior clerk. He was first stationed at an obscure post at Deli, where he had

his first contact with selling oil in the form of kerosene. Subsequently he was transferred to various stations as his value to the company increased. He was at Penang when Kessler employed him as inspector.

As soon as Deterding proved his capacity as salesman he was asked to take charge of the whole sales organization of the Royal Dutch for the Far East, with headquarters at Singapore, where he established himself in 1896. Here he engaged in the first of the long series of bitter battles with his competitors. Chief among them was the Standard Oil Company. It was many years before the dissolution of the great American trust, and it not only dominated the oil situation in the United States but had reached out throughout the world. In no alien place was it so strongly intrenched as the Far East. It was selling oil in the Dutch Indies even before Kessler got under way, and the first business battles that tested the capacity of the young sales manager were with the Standard on the Dutch East Indian home field.

By way of introduction to the first Deterding-Standard fight it may be well for me to say that the Standard Oil Company was the pioneer in oil in China. Before its advent the natives dropped a wick in fish oil or some other kind and lighted it. This was the lamp of the masses. The Standard came along and distributed millions of regular glass lamps at a nominal figure in order to encourage the sale of kerosene. This is why the Standard is sometimes called the Light of Asia. It literally illumined the way to some degree of Chinese comfort and convenience. So deeply did the Standard impress itself upon the Chinese life and mind that the native phrase for it, *Mei Fooy*, became a household word. Every street urchin knows it. Nor is it without magic.

When Miss Lucy Aldrich, the sister-in-law of John D. Rockefeller, Jr. was captured by Chinese bandits in the

spring of 1923 she began to call out "*Mei Fooy*," the only Chinese phrase she knew. She was the first of the prisoners to be released.

Deterding determined to break into the Chinese field. His first handicap was the fact that the Standard had a highly perfected organization with immense capital and a resolute policy. On the other hand, it had to transport oil a good many thousand miles because China was being supplied with the American product. Deterding had the one advantage which lay in the closer proximity to his field. Sumatra and Java were much nearer to Shanghai and Hong-Kong than Pennsylvania. Although he had the shorter haul, he lacked the agencies for transport. The oil tanker as we know it today then existed on a blue print.

Deterding was not deterred. He set out to forge the first link in what was to become a vast chain of oil interests. He made this initial deal with the then Marcus Samuel, now Lord Bearsted, the British oil Crœsus and head of the Shell interests. Henceforth Royal Dutch and Shell were to be linked in a common conquest of a considerable portion of the oil world.

With Samuel we come to the second dramatic figure in the Royal Dutch combination and it is well worth our while to pause for a moment and get the background. In human interest details the story of the Samuel family is a fit mate to the picturesque biography of William Knox D'Arcy and vies with that of Deterding.

The beginnings of no great fortune—and the Samuel wealth is near the top of the list in England—have been more obscure. In the early days of the nineteenth century an orthodox Jew, Marcus Samuel by name, set up a small curio shop in Houndsditch, in the heart of the East End of London, where so many of his co-religionists are segregated. The shop itself was a dark front room and the family lived in the rear. As is the case with most Jewish

families, there were many children. One of them was named after his father. In fact, there has always been a Marcus Samuel in the line.

One day the Samuel children went to Margate on a holiday. Romping on the beach they saw their first shells. They carried a modest lunch in a small box. When the food had been disposed of they amused themselves by fastening shells on the empty box. They were so pleased with their handiwork that they brought it home and showed it to the parents. It gave the elder Samuel an idea, for he began to manufacture shell-covered souvenir boxes and they became quite an item of trade in his little shop. He labeled them A Gift from Margate, A Souvenir of Bournemouth, or any one of the well-known British seaside resorts. Soon these boxes appeared in shops up and down the seacoast. It meant that with father Samuel business was increasing.

The cramped shop in Houndsditch expanded until its line of goods included shells from all parts of the world. The name Samuel grew to be synonymous with conchology. Meanwhile the firm of M. Samuel & Co. was started and larger quarters secured. The concern soon reached the point where it had buyers in the Far East collecting mother-of-pearl, Japanese curios, and copra, which is part of the cocoanut. By the time that the present Marcus Samuel—that is Lord Bearsted—entered the firm it was international in scope, with branches in the Dutch East Indies and elsewhere, had carried on important financial transactions with the Japanese Government, and become merchandizers in oil.

With oil, Marcus Samuel found the agency that was to make him a power. As international merchant he had begun to buy and sell refined oil on a considerable scale. Nearly all the oil sold in the Far East by Samuel was Russian kerosene which was supplied by the famous

financial house of the Rothschilds, who, with the Nobel interests, constituted at that time the two dominant Russian producing and refining agencies. Samuel was not satisfied to act as vendor of the Rothschilds product but was anxious to obtain a supply of his own. He soon found a way.

Toward the close of the '80's J. H. Menten, a Dutchman, obtained an oil and coal concession near the mouth of the Mahakan River in Borneo. He lacked capital to develop the area and sought the assistance of Marcus Samuel. In this concession Samuel found precisely what he was looking for, because it afforded the opportunity to get oil. He formed the Dutch Indies Industrial and Trading Company under a Dutch charter. In this undertaking, the first of the many that were to fly the Samuel flag, the family got the support of the Rothschilds, who henceforth were identified with its constantly expanding scheme of operations.

The original Menten concession was enlarged until Samuel and his associates had the exploitation rights for an area of over 500 square miles. A well was put down and before long the field was one of the most important in the Dutch Indies. In passing, it is interesting to note that from this field came toluene, a by-product which formed the base of one of the most powerful explosives used by the Allies during the World War. Marcus Samuel now had his own oil supply, which enabled him to compete not only with the Standard Oil Company but with the Royal Dutch. His firm was securely established both as producer and buyer of Russian kerosene, so he turned to the branch of the industry which he knew would be pivotal. That branch was transportation. Here he was to register his first conspicuous achievement.

Although the oil industry in one form or another had spread to nearly every civilized section of the world, the

crude project, as well as the by-products, had to be transported overseas in barrels. This contributed greatly to the overhead cost and to waste. The barrel itself figured as 20 per cent of the weight for each unit. This left only 80 per cent for oil. In addition there was always much leakage in transit, and as a further charge the barrels had to be hauled back empty to the source of supply. A more compact and efficient agency for transport became necessary.

In 1884 W. A. Riedemann, an influential German oil shipper, conceived the idea of using the water tank of the Andromeda, a 3000-ton clipper ship under charter to him, as an oil container. It proved so successful that he asked himself the question, "Why not construct a ship and use the sides of it to hold oil?"

The following year he planned, and had constructed at Newcastle-on-Tyne, the first oil tanker ever launched. It was called the *Glückauf*. Unfortunately for Riedemann, he obtained no patent and as a result anyone could construct them. The pioneer American tanker was built in 1888 for the Standard Oil Company.

The Riedemann claim to tank invention is disputed by John W. Marshall, an American. In 1866 he was granted a patent in the United States and Great Britain on a "method of transporting liquids in bulk." Lacking the means with which to prosecute the patent through the Patent Office, a pool was formed to handle it. Five members of the Atlantic Works at East Boston, Mass., were included and each held one share, Franklin W. Smith of Boston had two shares, and Marshall one share. Marshall was Chief Draughtsman at the Atlantic Works.

In 1866 he built the iron brig *Novelty* for a firm of Boston refiners to carry molasses in bulk from Cuba to Boston. When the Red Star Line, now a part of the International Mercantile Marine, was formed, it was the

intention to transport oil in bulk to Antwerp. A set of tanks built by Marshall were installed in the *Vaderland* in 1881. She took one cargo of oil in bulk to Antwerp, but the pipes and pumps for discharging her were not forthcoming. Attempts to convey oil in this manner were abandoned until the Riedemann type of tanker came into use.

The development of the tanker came at a psychological moment for M. Samuel & Co. The firm was concentrating more and more on oil merchandising and the carrying of petroleum and petroleum products, so it turned to the new type of ship as a valuable improvement. In 1892 it built and launched the *Murex*, the first tank steamer to voyage through the Suez Canal with a cargo of bulk oil. This began the formation of what is today the vast Shell fleet operating on every sea.

All the while the general Samuel organization was acquiring or absorbing subsidiary oil concerns. In 1897 the Shell Transport & Trading Company was formed to handle what had become a world-wide business. For sentimental reasons, Marcus Samuel called it the Shell because of the early association of his forbears with shells.

We can now get back to Deterding, whom we left installed as general sales manager of the Royal Dutch at Singapore. You will recall that in his first conflict with the Standard Oil Company he had a comparatively near-by supply of oil, but lacked the facilities with which to haul it. With the advent of the Shell concern and the tankers he saw his chance to overcome this handicap. He entered into an arrangement with Marcus Samuel to transport his oil from the Dutch East Indies to China and elsewhere in the Far East. From this deal grew the network of ramified Royal Dutch-Shell connections that is one of the marvels of the business world.

With a supply of oil near at hand, and with the Shell

ships to haul it, Deterding launched his offensive against the Standard Oil. It was before the Standard had perfected its overseas retail-sales scheme. China was a rich prize and the battle was long and hard. Each side lost in the end and no one was sorry when a truce was arranged.

Just about this time Deterding cabled to The Hague, where the headquarters of the Royal Dutch is located, that in his judgment the sales policy of the organization should be directed from the home office. Although Kessler, who was then General Managing Director of the organization, did not agree, he instructed Deterding to return to Holland while he went out to the East to look over the situation.

Upon his return he said to Deterding, "You are right. Henceforth the Royal Dutch must be directed from Holland."

In consequence Deterding was installed as managing director at The Hague. Deterding installed huge storage tanks at Shanghai, Hong-Kong, Calcutta, Swatow, Madras, Bombay, Bangkok, Amoy and Fu-chau. The advent of the tanker had made it essential to have bulk storage at the point of discharge. In this procedure Deterding was also acting under what has always been one of his cardinal rules. It is summed up in the sentence: "If you have a product to sell, keep an abundant supply of it on hand so that you can dispose of it when people want it."

Here you have the keynote of the policy of the future Royal Dutch-Shell combine. It never left supply to chance. You find its immense storage tanks at every port throughout the world and a vigilant system keeps them filled.

The moment Deterding got into the saddle, so to speak, as head of the Royal Dutch he began a campaign

for expansion. One by one the Dutch East Indian oil companies not annexed by the Shell crowd came into his ken. On the theory that anybody's oil is good so long as you can get it cheap and sell it at a profit, he made deals to market the output of the Burma Oil Company and other Indian companies. He also reached out for certain Russian concerns, but the real Royal Dutch penetration in Russia did not come until later.

This brings us to 1903 when there occurred the consolidation which helped to change the petroleum map. Although Deterding had employed the Shell ships to haul his oil from Sumatra and Java to China and other markets, he was in competition with Shell who were selling the Rothschilds' Russian oil throughout the Far East. The Standard Oil Company was also a factor in this game.

At this juncture the third vital figure entered the Royal Dutch aura. He was Frederick Lane, who represented the Rothschilds in London. He recognized the advantages to be derived from a consolidation of marketing interests and accordingly on June 29, 1903, the Asiatic Petroleum Company, Ltd., was formed. It was the most important petroleum merger up to that time. The stock of the Company was divided into three equal parts. One went to the Royal Dutch, the second to the Shell Transport & Trading Company, and the other to the Rothschilds through the Société Commerciale et Minière, Brussels.

The Asiatic Petroleum Company now proceeded to do the marketing and distributing in the Far East for the three groups. The original capital was £1,500,000 contributed in equal shares by each of the three partners. This has been increased from time to time. In 1918 the company was reorganized. It was through the formation of the Asiatic that the Rothschilds first became interested

in the Royal Dutch Shell group and this interest has expanded through all the succeeding years.

The first Board of Directors consisted of Marcus Samuel, H. M. Benjamin, and W. F. Mitchell, representing the Shell Transport & Trading Company; J. Aron, M. Baer, and Frederick Lane for the Rothschilds, and H. W. A. Deterding, G. H. Loudon, and M. A. Capadose, for the Royal Dutch. The Executive Committee, the real nerve center, was composed of Samuel, Lane, and Deterding. They were the Big Three.

Lane was a big factor in the subsequent evolution of European oil interests. Among other things he was largely responsible for the formation of the Europäische Petroleum Union which merged the various marketing interests in Europe of the Rothschilds, Nobel, and Deutsche Bank groups. He was the first managing director of this company. He was also a member of the firm of Lane & McAndrews, owners, operators, and charterers of tank steamers. He is now retired from any active business. Up to 1913 or 1914, when his health began to fail, he was one of the most active and influential men in the petroleum business outside of the United States. He was of great assistance to Deterding in working out the important details of most of his consolidations.

The Asiatic Petroleum Company definitely joined the Royal Dutch and the Shell groups. In one sense it was a sort of fifty-fifty proposition and each had a definite part to play. The Shell and Royal Dutch, for example, provided the storage depots and the greater part of the tankers to enable the Asiatic to carry on as an intermediary, while the subsidiary branches of both organizations produced the crude petroleum and its by-products. Deterding became managing director, although he retained the post of general managing director of the Royal Dutch, which, by the way, he still fills.

The combination at once made itself felt. With competition reduced, all effort could be concentrated on the enlarging of old and the establishment of new markets. Within a year the Royal Dutch Shell products were on sale in East and South Africa, Australia, New Zealand, Japan, Formosa, and the Philippines. Deterding has always followed density of population and in the Far Eastern countries he had an ideal field.

Deterding was now able to lock horns with the Standard on a big scale. He renewed the fight in China and this time it was a struggle of giants. Thanks to the Standard's campaign of education, John Chinaman was kerosene-wise. In other words, the Standard had paved the way for Deterding and he took advantage of it.

The organization of the Asiatic Petroleum Company did more than untie the highly efficient Shell selling-and-transporting machine with the Royal Dutch. It brought to Deterding the support of the Rothschilds, the greatest financial family of Europe, who had already been associated with Marcus Samuel and his associates, and who now became the box office of a combination which was soon to set up shop in Russia, Rumania, and Germany. As his scope widened, the great Jewish bankers of France and Germany also got in line and strengthened his financial offensive. The coalition with Shell brought a third asset, which was the invaluable moral and political support of Britain. In other words, Deterding not only had the strongest international banking groups behind him but could now fly two flags.

It was an opportune hour for expansion. Although D'Arcy had obtained his Persian concession, he had spent a huge personal fortune in unprofitable prospecting, and was now being courted by foreign interests, including the Dutch, who wanted his rich rights. The deal by which the British admiralty was to come to his aid had been

sidetracked. In the United States the Standard Oil Company was marching toward dissolution by Federal decree. Deterding realized that the time had come for a coalition that would dominate the whole oil industry outside America.

In a circular to his stockholders he outlined his plan for the linking of the Dutch interests with those of the Shell. In support of the proposition he argued that though the two groups had eliminated competition so far as selling was concerned, the separate aims of the companies clashed on the production end. Consent was given and the deal proceeded.

To unite as one corporate body was ruled out as bad policy, because each concern wanted to maintain itself as an independent unit. You will recall that in the original organization of the Royal Dutch the control had to remain in the hands of Netherlands subjects. The properties of both groups were therefore made over to two new operating companies. One was Dutch and was called the Bataafsche Petroleum Maatschappij, which means the Batavia Petroleum Company. This was charged with the production of petroleum and petroleum products. The other company was English registered and called the Anglo-Saxon Petroleum Company, Ltd., to which was assigned the transport, storage, and distribution of products. The combined capitalization of the companies was $104,000,000.

In the allocation of control the Royal Dutch took a 60 per cent interest in each group, while the Shell took 40 per cent. In the almost endless succession of new companies formed throughout the world under the sponsorship of these two corporations, this percentage has been scrupulously maintained. It means therefore that the Dutch are the dominant factor in the greatest of oil combinations.

It is interesting to note that in building up his huge combine Deterding followed precisely the same procedure that had been adopted by the organizers of the old Standard Trust in America. His idea was to dominate the whole oil industry outside of the United States.

Since the Royal Dutch-Shell combine is such a complicated structure—there are now 125 separate and distinct companies attached to what might be called the family tree—let me state the line-up in another and perhaps simpler way. The combine is dominated by the Batavia Petroleum Company, and the Anglo-Saxon Petroleum Company, Ltd., which control all the subsidiaries. The interest in these two companies, however, is in turn divided between the Royal Dutch and the Shell Transport and Trading Company on the 60–40 percentage basis that I have already indicated.

When this amalgamation was effected the Royal Dutch had been in existence for seventeen years. It not only owned two large refineries in Sumatra, which was also the seat of its production, but it had valuable fields in Java. Its storage farms were in nineteen different important trading centers, including Madras, Calcutta, Singapore, Bangkok, Hong-Kong, Shanghai, Swatow, Bombay, Fuchau, Amoy, Tientsin, Hankow, Rotterdam, and Düsseldorf. The Shell Transport and Trading Company concentrated its production in Borneo, had a fleet of thirty tankers and a close-knit selling organization.

The combine's first objective was an intensive development of the petroleum resources of the Dutch East Indies. Just how it succeeded is shown by the fact that in less than a decade it made that area rank fourth among the producing nations. Last year it slipped back to fifth place, having been displaced by Persia. The important detail, however, is that the inhabitants of the Dutch East Indies consume annually 5.5 gallons of petroleum products per

capita, which is the highest rate in the Orient. It is a tribute to the selling power of the concern.

The two great interests naturally needed a financing corporation to take care of what now became a continuous campaign of acquisition. This was obtained through the formation of the Geconsolideerde Hollandsche Petroleum Maatschappij, which means Consolidated Holland Petroleum Company. Its first big prize was the annexation of the Astra Romana Société des Petroles in Rumania, which showed that having made control of the Dutch Indies complete, the Dutch-Shell combine was now reaching out for new domains. They have been doing so ever since. The Astra remains one of the three most important petroleum producing organizations in Rumania.

It was in 1910 that the real era of Dutch-Shell world expansion began with the entry into Russia, which had become, after the United States, the greatest petroleum-producing area. The principal field is the Baku section on the Caspian Sea. Prior to the World War the output of these fields approximated 72,000,000 barrels a year, or 15 per cent of the then total production.

The oil pioneers in Russia were the Nobels, sons of Emmanuel Nobel, the perfecter of the torpedo. One of the boys, Alfred, was a famous chemist and manufacturer of nitroglycerin and dynamite. A curious irony of modern life is that this man, who made a huge fortune in explosives, left the greater part of it as an endowment for the propagation of peace and the suppression of armies.

Alfred's brother Robert was the first person to build a successful pipe line after the American fashion in the Baku field and was the real father of modern oil development in that one-time land of the Romanoffs. His firm became a tremendous factor in the industrial life of the empire. Its intelligence service was so efficient that there was a tradition throughout the land that three hours after

an oil proposition was made to the Imperial Government, no matter how secretly, a copy was to be found on Robert Nobel's desk.

Russia had such vast oil potentialities that scores sought to annex them. Although the Standard Oil Company of New Jersey has never produced in Russia—it now has an agreement with the Nobels for joint operation at Baku at that uncertain time when the Soviet Government becomes reasonable and condescends to some degree of so-called capitalistic endeavor—the company was a successful distributor of petroleum products there prior to 1914. When capital is free to operate again in Russia it will be found that the Standard, through the Nobels, will be contesting with the Royal Dutch-Shell giant for supremacy in the vast Slav market.

What concerns us here—for it is the link with Dutch-Shell—is the original penetration of the Rothschilds into Russia as rivals of the Nobels. They—the Rothschilds—organized various companies at Baku not only for production in that area but for distribution throughout Russia. There is no need of going into the various agencies involved save that in 1910 the Royal Dutch-Shell began to acquire these Rothschild Russian interests. They also obtained producing properties at Grosny, the second largest Russian oil field, which is 150 miles north of Baku. When the Soviet rule began in 1917 the Royal Dutch-Shell combine had large interests at Baku, but even more extensive ones at Grosny. With this oil they had supplied part of German and North European markets. The Royal Dutch-Shell also organized the Societa Naphta in Italy through which they distributed Rumanian refined oil to the Italian trade.

The present status of Russian oil is so cloudy that, to quote the Southern negro expression, "nobody knows where he is at." In the next chapter an attempt will be

made to explain the entire situation as it exists in connection with the recent attempts by various Americans to get into Baku and other areas, including Saghalin.

Two years after its invasion of Russia the Dutch Shell combine dropped its anchor, so to speak, into the oil preserves of the New World for the first time. Mexico was the first scene of operations. The Petroleum Maatschappij La Corona—the La Corona Petroleum Company—was organized at The Hague and became the holding company of the shares of a Mexican corporation—La Corona Compañia Mexicana—which had to be organized under the Mexican laws. Rights were secured for 220,000 acres, pipe-lines set down and a refinery constructed with an intake capacity of 45,000 barrels a day.

The principal contenders with the Dutch-Shell exploitation of Mexico were two oil barons—Lord Cowdray the Britisher, and Edward L. Doheny the American. Deterding, whose middle name is merger, now sought to acquire the interests of his rivals. Doheny stood pat, but in 1919 the immense Cowdray concessions, incorporated as the Mexican Eagle Oil Company, passed into the control of the Dutch-Shell group. Some idea of the immensity of this transaction may be gained when I say that Cowdray's concession covered the whole of the five states of Vera Cruz, Tabasco, Chiapas, San Luis Potosí, and Tamaulipas, and included the lease on an area of 1,900,000 acres of oil land. With it went valuable properties in the cities of Mexico and Tampico, 400 miles of pipe-line, steel tankage with a capacity of 12,000,000 barrels, and sales depots and installations for the domestic trade throughout the republic.

In connection with the Royal Dutch-Shell-Cowdray deal is an interesting disclosure. For some years the British Government has maintained that it had no interest whatever in the big Dutch combine. The further conten-

tion was made by the combine itself that its real nationalistic leanings were towards the Netherlands kingdom. Now for the sequel.

When it became known that Lord Cowdray was becoming weary of his Mexican interests, one of the most powerful of American oil groups made an offer for them. Cowdray, who had always been friendly to Americans, wanted to accept it. The British Government—which had to be consulted because oil is an imperial asset—declined to sanction the sale on the ground that it could only be made to a British firm. When the Dutch-Shell offer came along it was accepted "in the best interests of the empire," to quote the words of a high British official in discussing the transaction. You do not need a diagram to indicate where the British interest lies.

This probably accounts for the ease with which Deterding was able to get his hooks into Egypt—a British preserve—where the Anglo-Egyptian Oilfields, Inc., was formed to take over Red Sea Oilfields. A refinery was started at Suez. In all transactions involving British territory the Anglo-Saxon Petroleum Company has invariably been the intermediary and assumed control. Being the British member of the family, it can exercise all the privileges of its nationality.

The same system was followed in Trinidad, another British closed oil corporation. Here the United British Oilfields of Trinidad was organized to acquire the Trinidad Oilfields, Ltd. I cite the operations in Egypt and Trinidad to show the immense advantage that accrues to the Dutch combine by having both the British and the Dutch flags for penetration purposes.

Deterding also established himself in Germany. The contest there with the Standard Oil was for distribution of the refined product only. The spring of 1914 therefore recorded the creation of an Anglo-Dutch-German group,

with the Deterding allied interests and the Deutsche Bank as partners in production. Deterding had been associated with the great German banking institution for some time, because he had forced an entrance into the original Turkish Petroleum Company, which had the concession for Mesopotamia. In the reorganization prior to the outbreak of the World War he got a 25 per cent interest. At the distribution of oil spoils at the San Remo conference in 1920, where the French bagged the German interest, he retained his quarter share. This means that Dutch-Shell has its fingers in those rich Mosul-Bagdad fields.

The war momentarily checked the alliance between the Dutch and the German oil interests, but in June, 1923, they were renewed when Deterding started a movement to combine with the Deutsche Erdoel-Aktien Gesellschaft, which owns and operates, either directly or through subsidiaries, the major section of the oil-producing territory of Germany, most of which is in Hanover. The German concern controls four large refineries and several candle factories. Considerable mineral oil is produced in Germany by treating lignite, the so-called brown coal. The Deutsche Erdoel-Aktien Gesellschaft is the most important factor in this industry.

It was natural that the Dutch-Shell combine should make its appearance in the American field. Here we reach the point in its astonishing advance when for the first time it ran afoul of a government. This government was our own. Moreover, Deterding's persistent penetration caused Uncle Sam to bestir himself for the first time in an effort to conserve his oil domain and to protect his nationals in petroleum fields abroad.

The story of the Dutch-Shell activities in the United States is almost as complicated as the structure of the whole group itself for it is the story of absorption and

consolidation of groups of companies. One of the first producing companies to be organized was the Roxana Petroleum Corporation, which acquired, among other things, leases on public oil lands in Oklahoma. This started the trouble, because it was just about this time that Americans, realizing the need of foreign production as insurance against the exhaustion of their own supply, started to prospect in alien lands. In the Dutch Indies they encountered a law restricting oil concession to Dutch subjects or Dutch companies.

The American oil men therefore said, "If the Dutch exclude us from their colonies they have no right to exploit our public lands."

In consequence Congress modified its historic policy in 1920 by enacting the Mineral Leasing Law for public lands, which forbids the acquisition of properties by the nationals of any foreign country that denies reciprocity to Americans. The immediate result was the denial of applications for various petroleum leaseholds by the Royal Dutch-Shell group.

This incident led to an investigation of foreign ownership in the petroleum industry in the United States by the Federal Trade Commission under a Senate resolution. The investigation specified directed itself at the control of the Union Oil Company of Delaware, the Union Oil Company of California and the Shell Company of California, all of which had come, more or less, into the ken of the Deterding group.

There is no need of going into all the ramifications of this investigation. It is embodied in a report of 152 pages. The vital fact to be disclosed is that the Dutch-Shell group effected a reorganization of its American properties so that they were all under American charter. Where public lands are exploited it is done by companies with a majority of Americans on the board of directors.

The Dutch combine now operates in the United States through two concerns. The most powerful is the Shell Union Oil Corporation, of which Deterding is president, and in which the combine has a 72 per cent stock ownership. It includes the Shell Company of California, the Roxana Petroleum Corporation, and the Ozark Pipe Line. Dutch-Shell also bought the Union Oil Company of Delaware, now dissolved, which included a 26 per cent holding in the stock of the Union Oil Company of California. The last-mentioned deal helped to instigate the Federal investigation, because it was believed that the Dutch had acquired control of this California company.

The second Dutch-Shell concern in the United States is the Asiatic Petroleum Company of Delaware, in which their ownership is 100 per cent. It includes the New Orleans Refining Company, the Asiatic Petroleum Company of New York, the Simplex Refining Company, and three steamship companies called respectively, Pearl Shell, Silver Shell, and Gold Shell.

All these names, however, mean little. What the average American wants to know is the extent of the Dutch-Shell operations over here. First of all, they control 241,000 acres of oil lands, 34,000 acres of which are proved acreage, with 2114 producing wells. These lands are located in California, Oklahoma, Kansas, Louisiana, Texas, and Wyoming. They have five refineries in California, Oklahoma, and Missouri whose daily capacity is nearly 70,000 barrels. In California 752 miles of pipe line are operated.

As nearly as can be estimated the Royal Dutch-Shell group produced 46,000,000 barrels of crude in the United States in 1923, or slightly over 6 per cent of the total output of the country. The Shell of California led with 28,000,000 barrels.

Thus from year to year Deterding has built up his

world-wide chain of producing, refining, and transporting interests. With the exception of Persia, he is in nearly every known petroleum area. In distribution he has reached the last word in efficiency.

No organization surpasses the Dutch-Shell interests in the completeness of oil-bunker system. It includes 120 stations, ten of which are in the United States. The organization has reached the point where an oil-burning steamer, leaving New York City on a voyage around the world, and stopping at every port of consequence in Europe, along the Mediterranean, India, the East Indies, China, Japan, the Philippines, Australia, New Zealand, the west coast of North America, and returning to New York City through the Panama Canal, can replenish its fuel at a Dutch-Shell storage tank wherever it calls.

As a matter of patriotic interest let me add that the Standard of New Jersey, through its own foreign subsidiaries and contract arrangements with various other distributing companies such as the Standard of New York in the Far East, can duplicate this achievement at all important world ports.

Now that the panorama of Deterding achievement has been unfolded we can get a close-up of the man himself. I first met him in London just before I went to Holland in 1918 to make a study of German penetration there. Then as now, the British capital was the real seat of his power. The Dutch were literally between the devil and the deep blue sea. On one side they had the ravening Hun, who was absorbing all their food supplies, while on the other was the no less relentless sea, with its horde of merciless submarines. The Allies had seized a large portion of Dutch shipping and the little country was in a ferment.

At that time Deterding was one of the advisers to the British Government and was being used as a calming influence on his countrymen, who were restless under the

ship seizure. Although he was frankly irked, he told me that "the shipping incident was in the best interests of ultimate Allied victory."

It was on this occasion that he told me the story of his life. I recall that when I asked him to explain his formula in building up the Royal Dutch he said:

"My whole idea has been to create good-will. To crush a rival is to make an enemy. To buy out a competitor at a cheap price is like hiring a good man at a small wage. In the end it is bad business because it creates discontent. If consolidation is necessary, make it worth while for the concern you need, for then it becomes a real partner."

I had various talks with him in 1918 and at each meeting I got a deeper impression of the man's striking personality. While strong and forceful in his method, he is suave and courteous in his speech. You are not long in discovering why he is a master salesman. With him, to quote the Oriental proverb, "patience is the key to paradise." The Dutch staying quality is one of his chief assets. He speaks English with a slight accent in which the Dutch guttural is predominant.

In the summer of 1923 I went back to see Deterding again. The Royal Dutch had just acquired a huge new office building in St. Helen's Court and he was installed in a large office on the fifth floor. The Dutch oil king had become a trifle stouter and there were more gray hairs. He was alert and energetic as ever.

In the intervening years he had been made a K.B.E. —Knight of the British Empire—by King George, and although he still retained his Dutch citizenship, had put a handle on his name. This is rather an unusual procedure, because knighthood for most aliens is a purely honorary title and is seldom used. General Pershing, for example, is a K.C.B.—Knight Commander of the Bath

—but he never thinks of calling himself Sir John Pershing. With Deterding a title is good business and he has not failed to capitalize it, especially in England, where despite the deluge of honors and the growing scarcity of plain misters, a knight still commands consideration.

Deterding's office is characteristic of the man. He sits at a curious semicircular desk very much like the one which Clemenceau uses at his house in the Rue Franklin in Paris. It curves around him so that all objects on it are immediately accessible. On the wall at the left of him hangs an immense map of the world showing the Dutch Shell operations and tanker lines in red. The only picture in the room is a reproduction in colors of the labels used on Shell oil tins in the Far East.

I asked Sir Henri about the world oil situation and he replied:

"The oil industry is safe if governments do not interfere. Take the case of Rumania. The scheme of nationalization there, combined with government price-fixing, which makes one price for imports and another for exports, is demoralizing. Even Holland is becoming restrictive in her oil measures. The oil industry must have the advantage of individual initiative and must therefore be untrammeled by excessive supervision or legislation."

When I asked him what he thought of American oil operations in Russia—a group of Americans is now putting down wells in the Baku district—his comment was:

"Russian oil cannot compete with the rest of the world now because of the political demoralization in the country. Besides, the American and Dutch oil is so much superior. Furthermore, if the present Russian production is increased, where and how will it be sold? The Soviet Government has permitted refineries and pipelines to deteriorate and there is no machinery for distribution."

"What is the future of oil?" was my next query.

With that near-hypnotic smile which is one of his best aids, Sir Henri responded:

"Future production in a big way can only lie in international coöperation. An oil war between nations is unthinkable. When all is said and done, labor and not oil is the world's greatest wealth. The biggest oil problem therefore lies in getting the most out of labor on a mutually advantageous basis."

I now asked Sir Henri if his ambition was to control the oil supply of the world, adding that I had heard in America that he wanted to tie up distribution to the point where no oil-burning ships could sail the seas without contracting with him. In putting this question I felt very much in the same way as when I asked Stinnes if he were the author of the mark-catastrophe policy in Germany. Without hesitation Deterding retorted:

"I am in the oil business and naturally I want to do all the business I can. In the Dutch Indies our oil grounds are gradually decreasing, and we have no big reserve areas there. Therefore we have had to employ, and we will continue to employ, our capital organization and energy elsewhere. Throughout the world our geologists are at work for the extension of our oil areas. If this means control, then we want to get all the control possible."

Like most men of his kind, Deterding has a sense of humor. When I asked him how much of the world's supply of oil his interests controlled, he rang a bell and sent for a certain document. In handing it to me he said with a smile, "This little book will answer your question." It was the report of the Federal Trade Commission, which does not deal over-gently with Dutch-Shell penetration in the United States.

Deterding has had a worthy colleague in Lord Bearsted, head of the Samuel end of the combination. The Jewish boy whose forbears sold curios over the counter of that little shop in the East End of London has achieved much. He was Lord Mayor of London in 1902. Two years later he became Sheriff, a post of vast importance in England. Meanwhile he had been made a baronet. In 1921 he was created a peer in recognition of his services to the empire during the World War. Lord Bearsted is in poor health and has practically retired from active affairs. He is big of bulk and of vision. To his foresightedness has been due the phenomenal development of the Shell tank-and-bunker system. His place as Chairman of the Shell directorate has been taken by his son Captain Walter Samuel.

Lord Bearsted's brother, Samuel Samuel, who is a member of Parliament, resembles him in size and manner. He still directs the old firm of M. Samuel & Co., which marked the evolution of the Houndsditch curio shop into an international concern. When I asked him how he happened to get into the oil business he replied:

"It is a curious fact that but for the Standard Oil Company the Samuel family would never have been in oil. In our early days we were merchandisers in petroleum products in the Far East. The Standard entered the field and sold so cheaply that we had to get our own production or quit."

You have now seen how the Dutch oil coalition, with its well-nigh endless ramifications, has been built up with Deterding as the master organizer and Marcus Samuel as the chief lieutenant. Its grip has been strengthened, especially in the Far East, by still another agency embodied in the exclusion of aliens from petroleum production in all Dutch territory. In this procedure the Netherlands Government has followed the lead of Britain,

which bars foreigners from rich oil areas like Burma and Trinidad.

Under the mining laws of the Dutch East Indies a discoverer of petroleum is not entitled to a mining concession. Oil-development rights belong to the government, or to persons or companies with whom contracts are entered into by the administration. These persons must be Dutch subjects. The companies must further be incorporated under Dutch laws either in the home country or in the Dutch Indies.

The only alien company to break into the Dutch Indies is the Nederlandsche Koloniale Petroleum Maatschappij which was formed in 1910 with Dutch directors and stockholders under the direction of the American Petroleum Company, a Dutch marketing and distributing company in which the Standard of New Jersey is a stockholder. This organization, which is generally known as the Koloniale, has from time to time applied to the Dutch Government for a total of 4,000 prospecting permits. Only 61 were granted and all were worthless.

On May 1, 1913, the existing mining law in the Dutch Indies was suspended and until 1916 no oil rights could be obtained. During the latter year a law was enacted giving the government the power to grant or refuse concessions.

Meanwhile the Koloniale purchased from third parties certain prospecting permits under the previous law, which gave the prospector the right to a concession upon discovery of the mineral. The original holders of these permits were Dutch subjects. Several of the permits had been drilled and abandoned by the Royal Dutch Company before being sold to the Koloniale. Operations are now being carried on under these permits in Java and in Sumatra, and a production has been developed of about 200 barrels a day in Java, and from 5,000 to 6,000

barrels a day in Sumatra. The Java production is run into a small topping plant which the Koloniale erected in close proximity to the producing field, and the finished products are distributed in the same general district.

The production in Sumatra did not reach commercial proportions until 1923. No decision has been made as to how it will be marketed. It is only a question of time, however, before an American-controlled company will be producing, refining, and shipping oil out of the Dutch Indies, which heretofore has been exclusively a Royal Dutch-Shell preserve. The total area controlled by the Koloniale in the Dutch Indies is between 60,000 and 70,000 acres, of which about 15,000 acres are included in the concessions on which production has been secured.

In contrast with these figures the Royal Dutch Company controls over 5,000,000 acres, partly granted under the old mining law, and partly through the Djambi contract which will soon be explained. During the period that over 4,000 applications for prospecting permits were refused the Koloniale by the government of the Dutch East Indies, 984 permits were granted to Dutch subjects. Of these 945 were given to the Royal Dutch. This will afford some idea of the difficulties and obstacles Americans have faced in endeavoring to develop a commerical production under the Dutch flag.

A concrete example of the way Dutch exclusion works is in the Djambi case to which I have just referred. The Djambi fields in South Central Sumatra are said to constitute the richest undeveloped oil area in the Dutch East Indies. Directly it became known that the Dutch government had decided to offer them for exploitation, the American Government took up the matter of an American participation with the proper authorities at The Hague. Despite this overture from Washington a bill was introduced in the Netherlands Parliament be-

stowing all the Djambi oil rights on the Batavia Oil Company, one of the principal subsidiaries of the Royal Dutch-Shell combine.

Washington at once entered a strong protest. It called attention to the fact that although American capital was excluded from Djambi, British money was permitted to participate. This reference was to the Shell end of the Dutch combination. It was just one more illustration of how the Anglo-Dutch community of interests works. The inevitable result was that the Dutch Parliament passed the bill giving the Batavia Oil Company the Djambi fields.

The aftermath of this amiable performance was the refusal of the American Department of the Interior to grant prospecting rights in Utah to the then Shell Company of California until the Department was satisfied that the governments of Great Britain and the Netherlands do not discriminate against Americans in oil fields under their flags. This action constituted little more than a gesture, because the discrimination against us in British and Dutch domains continues.

What are Americans doing in the face of this increasing foreign control of oil area and production? In the next chapter you shall see how they are waging a counter offensive in many lands and climes.

CHAPTER IV

THE AMERICAN OFFENSIVE

In the preceding chapters the growing British and Dutch control of the major part of the potential and producing petroleum areas of the world, outside the United States and Mexico, was disclosed. This brings us to the American phase of the world struggle for oil. What are we doing to take out some insurance against exhaustion of our supply, and how is it being done?

That an American oil offensive overseas is not only necessary but imperative almost goes without saying. We are producing at the rate of about 2,250,000 barrels a day, while our consumption, with exports, approximates 2,100,000 barrels a day. We have developed our fields while other nations were conserving their stores, and at the same time setting up bars to keep out prospectors, including ourselves. Economic self-preservation dictates the widening of our field.

American oil penetration in alien lands on any kind of a large scale is a comparatively recent activity. I must except Mexico, of course, which is so near at hand that in the liberal conception of the term it is not considered foreign. Not only is the work new for Americans but they have suffered from three distinct handicaps. Each has its element of interest.

The first grows out of the fact that whereas the Englishman, the Hollander, the Frenchman, and the Belgian are old hands at the concession game, we are practically novices. The petroleum industry offers an excellent illustration. In the United States the oil lease

is a comparatively simple matter. There is a frank man-to-man negotiation, the documents involved are filed at the county court-house, and the matter is ended save for the payment of royalties or purchase price.

With a foreign concession the procedure is on a larger and more difficult scale. You have to deal with a government instead of an individual. Behind that government is usually a parliament, and dominating the parliament is invariably a group of politicians who have to be dealt with. Moreover, between the institution of negotiations for a concession and the granting and signing of it, the government may change and the whole tedious and expensive performance must be gone through all over again. Finally the American is called upon to treat with temperaments and personalities that are strange, and wrestle with a language that he frequently does not understand in more ways than one. When we occasionally have an opportunity to plant the American flag in a potential area it is either frustrated by sharp competition—Northern Persia is only one of many cases in point—or by internal squabbles that defeat the purpose.

The predicament in which the American petroleum industry finds itself in respect to the acquisition of foreign oil reserves illustrates the striking difference in our habits of thought. The Britisher is a born concession hunter. His method is to secure something, then put a fence around it, and leave it alone until he needs it. The American, on the other hand, has been so endowed with natural resources that his tendency has been to take no heed of the future, and neglect to provide until the necessity arises. Then, when no one else is developing a natural resource, he can not understand why he can not exploit it, that is to say, he can not comprehend why anyone should have a fence around something that other people need. We have put no fences around

our petroleum reserves, and the foreigner has come and gone at will.

The second handicap is the lack of a consistent foreign policy by the American Government. Advocacy of the open door does not constitute the whole job. The real troubles of the concessionnaire often begin after he has got past the portal. Our foreign economic attitude usually changes with every Administration, and its uncertainty is almost as bad as the instability of alien régimes.

The third obstacle to our oil expansion abroad lies in exclusion or discrimination. There are seventeen different countries with laws or regulations which hinder petroleum development by aliens. Some of the restrictions which have discouraged the American in the foreign petroleum field are: prohibition of ownership or operation of oil-producing properties by foreigners; government participation in ownership and control of companies; prohibition of the transfer of shares in companies to other than nationals; proscription of nationals from selling their properties to foreigners; special and complicated government licenses; and repudiation of rights originally acquired in accordance with the law.

Behind our backwardness in the matter of foreign penetration lies still another reason. The original great American oil fortunes were made in refining and marketing oil, and not in producing it. This is particularly true of the Rockefeller and Rogers millions. Being canny and cautious, these early oil barons preferred to let the other fellow assume all the hazards and anxieties of production. Besides, the fetish of the old Standard Oil Company before dissolution was that the world should be lighted with the American product. Oil had not entered so deeply into the life of industry and transport as now and the areas in the United States seemed more

than ample for all human and industrial needs. It was only through stern necessity, born of the prospect of a diminishing supply at home and the increasing control by aliens overseas, that we bestirred ourselves.

No attempt will be made to deal with the efficient American system which has distributed our petroleum products throughout the world. From China to Turkey, the native not only uses our kerosene but finds the containers a first aid to his daily existence. In China, for example, there are exactly 250 different uses for empty Standard Oil tins. What interests us here is production as it enters into the problem of future supply, and therefore constitutes the objective in the international struggle for oil.

The American soldier who went overseas to fight got plenty of action and likewise plenty of glory. The pioneers of American petroleum production abroad are invested with the glamour of great adventure which is unheralded and unsung. They have penetrated the jungles and crossed the mountains of South America, trailed in the wake of the crusaders in the Holy Land, and ranged the shores of the Caribbean. Remote domains like Saghalin, off the Siberian mainland, have come into their ken. During the World War one of the most dauntless of these Argonauts shepherded his countrymen out of Rumania in the face of the advancing German hordes.

In exploring new worlds the Yankee petroleum expert did more than dramatize the desire for fresh fields. Ninety-five per cent of what might be called the technic of the industry today is American in origin and development. The American oil driller is a distinct type. You can spot him anywhere, whether he is knee-deep in Galician mud or emerging from the mist of the Slavic steppes. He has set up a little Texas, Oklahoma, or

California wherever he has gone, no matter how remote. His courage and character have been a credit to his country.

The American offensive for oil outside of the United States began in Mexico, and it is here that we will begin the narrative. Most people know that Edward L. Doheny blazed the way for his compatriots there, but not all are aware of the circumstances in which he began. He had discovered oil at Los Angeles and elsewhere in California in the early nineties and was a millionaire when he invaded Mexico. Curiously enough, he had prospected for gold there in the seventies. He was a mule-driver for the Geological Survey on the boundary line between Arizona and New Mexico when he first went into the country that he was to annex to the states of oil.

It was in 1900 that the invasion of Mexico began. Several years prior to this time Doheny—always a bull on oil—had caused a locomotive on the Santa Fé Railroad to be converted into an oil burner, the first of its kind. It was used for demonstration purposes in a Los Angeles switch yard. A. A. Robinson, then president of the Mexican Central Railroad, became interested in oil for fuel and suggested to Doheny that he open up a field in Mexico, guaranteeing a contract with the Mexican Central for part of the product.

Doheny availed himself of Robinson's invitation and started his investigation in territory not far from Tampico, where there were considerable seepages. The railroad gave him every facility. Thus it came about that the American was able to prospect in a special train, which had never been done before. Doheny and his staff would ride for a few miles, stop the train, and go into the field. It was prospecting de luxe, as it were, and it yielded a de luxe find. As a result Doheny acquired a tract of 250,000 acres—it has been greatly en-

larged since—and brought in a well, the pioneer of the present Mexican production that in 1922 yielded 185,057,000 barrels, which has made Mexico the second-largest producing country.

When he offered the first oil to the Mexican Central Railroad he was instructed by a new chairman of the board of directors that the fuel contract had been abrogated. Doheny was up against it for a market, because the Texas field was overproducing. Instead of bringing suit against the railroad he continued his oil development, including the construction of a refinery at Ebano. In order to earn his overhead he organized a paving company in the City of Mexico. He had oil, which means that he also had asphalt. Let me give the aftermath in Doheny's own words:

"As a result of the organization of the paving company we finally paved about 50 per cent of that part of the City of Mexico that is now paved, and also did all the paving done in the cities of Guadalajara, Morelia, Tampico, Durango, Puebla, and Chihuahua. Thus failure to have a railway contract with the Mexican Central Railroad gave Mexico the best pavement on terms probably cheaper than any other country. These cities soon ranked among the best paved in the world. When payment for this work became due the engineer of the City of Mexico, for example, examined the work, and if it was good, provided a certificate which was our voucher. The work had to be as good at the end of ten years as when it was accepted. It is almost needless to say that all our paving work was done under the Diaz administration."

From the start President Diaz was the staunch friend and ally of Doheny, just as he aided Lord Cowdray, the second big exploiter of Mexican oil lands. The troubles of oil men in Mexico began with the downfall of this

dictator, who, though ruthless in rule, had a big economic vision and safeguarded business interests.

The endless chain of complications in Mexico which caused us to intervene with armed force at Vera Cruz, and which has practically paralyzed economic penetration by aliens, has all grown out of the failure of the Mexican Government to protect foreign capital and those who work in the interests of capital. Oil expansion is becoming increasingly more difficult because of many factors, one of them being a so-called nationalization scheme which has just been put into effect, and which, as is the case in Rumania, makes the government the arbiter and the owner of mineral rights.

The Doheny interests in Mexico are the largest single holdings—that is, when you appraise the Cowdray and Royal Dutch properties separately. The British and Dutch are now under Dutch ownership, but retain independent organizations. Doheny produces nearly 40 per cent of the total Mexican output. He controls more than 1,500,000 acres, with all necessary equipment, including a railway, tanker fleet, and a school for the native children.

The second-largest American interest in Mexico is that of the Standard Oil Company of New Jersey. With this organization we not only arrive at the agency that has planted the American derrick in more varied and distant parts of the globe than any other but also encounter E. J. Sadler, whose adventures in oil are probably not surpassed in variety or drama by any American figure in the industry either at home or abroad. Since the record of the Standard of New Jersey is a considerable portion of the story of our petroleum campaign in other countries, and furthermore since Sadler has been a dominant factor in some of them, it is worth while to get his history in brief.

Sadler was graduated from the Naval Academy at Annapolis in 1898 in time to serve on the famous battle-

ship *Oregon* throughout the Spanish-American War. He was one of her officers when she made her gallant dash around the Horn to the rescue of Sampson and Schley at Santiago. After he left the Navy in the early days of the twentieth century he had his baptism of oil in Kansas with the Union Oil Company and then joined the old Standard forces.

It was in Mexico, where he helped to establish the Standard of New Jersey, that Sadler came to know the hazards and hardships of the oil game. The Tampico area, which is one of the largest producing fields, was wild and infested with bandits. Sadler literally had to fight both the country and the people. He was captured several times by guerillas.

Upon one occasion he was taken prisoner while carrying a pay roll in gold. He had only $6000. His captors believed that he had $60,000 and they tortured him for several hours. He was then sentenced to death. With bayonets pointed at his back he was driven through the jungle to the place of execution. While resisting, his left wrist was broken and his right sprained. Eventually he escaped under cover of night, fell into a canal and was fished out more dead than alive. Incidents like these were his lot for more than a year, and until some degree of order and protection was established in the area. Largely through Sadler's pluck and perseverance the Standard was able to intrench itself in Mexico and develop its properties to the point where they have a production of 150,000 barrels a day. Mexico, however, was only one background for a Sadler exploit as you shall soon learn.

All the great American independent oil companies are strongly represented in Mexico, in both the light and heavy oil fields. With the Doheny and Standard interests they have made the so-called Tampico area, which is the center of the most important oil production section of the

republic, a small cross section of Yankee-land. During the periodic Mexican revolution—and they are almost as regular as civil wars in China—Tampico invariably becomes a storm center. More than once American warships have been sent there to awe the rebels and protect the American properties whose value runs into many millions of dollars.

The Gulf operates in Mexico as the Mexican Gulf Oil Company, while the Texas conducts its business through a subsidiary called the Texas Company of Mexico. The Sinclair Consolidated Oil Corporation, which has large holdings and a considerable production, employs its original name.

The big point to be emphasized in relation to Mexico is that, figuratively, it is an important clause in the insurance policy that the American oil industry has taken out against the possible exhaustion of its supply. There is a wide divergence of opinion about the future of Mexican oil. Exhaustion of wells and the invasion of salt water have materially reduced the yield. The output for 1923 was 149,529,088 barrels, the lowest since 1919. It is not likely, however, that Mexico will soon lose her place as the second largest producing area. Her closest rival is Russia, which in its most expansive day produced only 72,801,110 barrels a year. At the moment the principal menace is not in the ground, but above it, in the shape of drastic legislation and costly impositions which may make production too irksome and expensive.

To continue the American foreign oil offensive logically is to carry on straight down towards South America. We are in the trouble belt and we might as well remain there for the time being. I say "trouble," because foreign economic penetration in practically all the Latin-American countries is often at the mercy of unsound legislation. The difficulties of the American oil men in Mexico are on

a par with the troubles of the alien producers in countries like Venezuela and the Argentine.

When you analyze what has happened to American oil pioneers in South America you find that most of the countries have followed a simple but effective formula. At the start they are hot-foot for foreign capital and all modern improvements that go with it. "Pan-America" is a glittering dream of amity and accord. No promise is too rosy to be held out. Once a company establishes a costly series of plants, and is ready to market its product, the adverse laws begin to rain thick and fast. Royalties are suddenly increased, and measures imposed that eat up profits and frequently lead to bankruptcy or retirement.

To resume our journey, in Panama the American oil development is by the Sinclair, Gulf, and Standard interests, while in Costa Rica the Sinclair people are alone. In both these countries the effort so far is confined to prospecting. It is when you reach Venezuela that you get into the first big oil-producing belt with Americans in the distinct minority. It is not their fault, however, as I shall now reveal.

What is known as the Maracaibo Basin of Venezuela —the district around Lake Maracaibo—is one of the richest petroleum domains of all South America, and it is no less rich in romance. The Caribbean Sea, which lies to the north just beyond the Gulf of Venezuela, was the stamping ground of that band of buccaneers dear to every American boy's heart. Here flourished Morgan, Kidd, and Hawkins, with their fascinating associations with buried treasure and the hard-fought Spanish Main.

As far back as 1910 American oil men, and particularly large asphalt companies, began to see the possibilities of production in the Venezuelan field and secured the most important concessions there. With the election of Woodrow Wilson as President in 1912, and the installation of

William Jennings Bryan as Secretary of State, their anxieties began. Although Wilson had been elected on a platform guaranteeing protection to American interests abroad, Bryan got cold feet in translating this protection into actuality.

There is no need of going into the episode of so-called dollar diplomacy. Sufficient to say that the State Department served notice on all American nationals in alien countries that they had to go on their own. In a country like Venezuela the American oil man, for example, required the authority of his government behind him. Since this was not forthcoming, the American interests in many valuable oil properties passed into the hands of the British and the Dutch.

Despite the handicaps of a lax stewardship of interests by Washington, Americans, headed by the Standard Oil Company of New Jersey, have reëntered this field and begun to produce. Other American companies and syndicates, including the Gulf, have also gone in. Thanks to this combined initiative, the overseas American oil production will soon be considerably increased by the Venezuelan contribution.

In Colombia we are in the lead. Once more you have the Standard of New Jersey conspicuous as a pathfinder in the face of costly and irritating legislation and also excessive royalties. It is the usual South American restrictive game all over again. At one time it looked as if Colombia would be the main American area in all South America. In 1919 there was a big rush and forty-nine American companies had concessions. Now nearly all have quit.

In the Argentine you have the Standard of New Jersey flag unfurled over a prospecting campaign that extends as far south as Patagonia. This huge country is rapidly becoming a heavy consumer of petroleum products and itself has a growing production. Oil was discovered acci-

dentally in 1907 and there are four extensive fields. One interesting feature is that the Germans, including the Stinnes interests and the Deutsche Bank, are active in exploitation.

The Argentine Government owns all the subsoil rights, and many difficulties are encountered by alien companies in extracting a reasonable profit out of them. The Anglo-Persian Oil Company, for example, is just about to quit the country after having dropped something like £1,000,000. The strongest foreign company, as usual, is the Royal Dutch, which operates under an old oil concession that has so far resisted the inroads of the government.

The Yankee stronghold in South America is Peru, where the International Petroleum Company, a subsidiary of the Imperial Oil, Ltd., in turn a subsidiary of the Standard of New Jersey, is getting a daily production of 20,000 barrels. International Petroleum, which is also operating in Ecuador, is rapidly developing into one of the strongest producing units in South America. Under the stimulating American initiative Peru has become the eighth country in volume of oil production and has one of the best oil futures of any of the South American countries.

The foreign operations of the Standard of California deserve a little section all their own. Not only is this company wildcatting in Ecuador and Colombia but it has had the courage and the patriotism to drill for oil in Alaska and the Philippines. In our remote northern principality the work has continued through bitter cold that would have discouraged most petroleum hunters. The opposite extreme is in the Far East where a no less discomforting heat has been the order. Altogether the Standard of California has expended $10,000,000 in overseas wildcatting without obtaining a single barrel of oil so far.

Let us now turn from Latin-America and see what the

American oil producer has done to increase his supply in Europe. The initial production, and it remains the largest, is in Rumania. After Russia, this country has the most extensive petroleum deposits on the Continent. They were one of the prizes in the World War and were fought over by the contending armies. Here, as in South America, the alien oil man, no matter what flag he flies, is up against the combination of governmental cupidity and eccentricity of legislation.

Clearly to understand the perplexities of the Rumanian oil situation you must first know something about national characteristics. The big fact is that the Rumanians are Orientals without knowing it. Certainly they do not acknowledge it. Therefore they are evasive and, like the Turks, profit by the other fellow's discords and troubles. If the Rumanian government enters into a negotiation that it wants to side-step, it enacts a law legalizing the change of mind, and what is often something more material.

Oil for years has been a sort of national legal tender. When Rumania wants a loan from England, France or Holland, she peddles petroleum for it. A story will illustrate Rumanian jugglery with oil:

The government bought $31,000,000 worth of locomotives from a well-known American concern when the *lei*—the principal Rumanian money—was comparatively high, and gave notes. With the maturity of the notes, instead of paying cash, it offered two-thirds of the amount outstanding in petroleum. The remainder was tendered in cash or bonds at the sadly depreciated market value of the *lei*. This meant that in actual money $12,000 was offered for a portion of the debt that aggregated twenty times this sum at par. Moreover, the American company found itself literally loaded up with oil, with no machinery for its sale or distribution.

This illustrates only one phase of the uncertainty of the Rumanian oil market. The government not only fixes prices but establishes one set of prices for oil sold at home, and another for oil that goes abroad. The internal price is usually one-eighth the export price. There is a reason. The government obtains the oil that it uses in its financial transactions at the internal rate and pays its debts with it at the export scale. At one time the American oil company in Rumania was forced to accept three cents a gallon for gasoline within the confines of the country, when it could have shipped it outside and obtained twenty-six cents.

When I was investigating the oil situation in Rumania in July, 1923, the government was a sort of family affair conducted at the pleasure of the Bratiano brothers, who were frank about their operations. Jan was Premier and Vintella was Minister of Finance. One proposed and the other disposed. This teamwork ran the country.

I asked a well-known Rumanian how and why the people stood for the Bratiano syndicate. He shrugged his shoulders and replied, "We take the Bratianos like the weather. We grumble, but we cannot do anything about it."

Just before my arrival from Turkey, the Bratianos had put through a nationalization scheme for oil which made the subsoil the property of the government. It could not interfere, of course, with leases already in operation, but it put a serious obstacle in the way of legitimate expansion. When I say that there are 104 oil companies in Rumania you get some idea of the extent of the industry and the trouble ahead. In addition to nationalization, the government began to restrict exports until an almost top-heavy home quota was filled. The home quota was made excessive not because oil is the principal railroad

and industrial fuel, but because it gave the government more oil to manipulate.

With this bird's-eye view we can now find out what America has done, and also how she has been done, in Rumania. It was in 1903 that the old Standard Oil Company acquired leases and put down some wells in what is known as the Moreni fields. Even at that early day progress was impeded by official obstructions. In 1910—the year before the government dissolved the old Standard Trust—the company was on the point of retiring when it reconsidered withdrawal at the instigation of Walter C. Teagle, then principal European representative and now president of the Standard Oil Company of New Jersey.

With dissolution, the Rumanian company—it is called the Romana Americana Societate de Petrol—came under the wing of the Standard of New Jersey, which launched an active campaign of expansion. Wells were drilled in the Baicoui and Bushtenari fields. A huge refinery was built at Ploesti, about sixty kilometers from Bukharest, and the plant harnessed to the oil fields by pipelines. Much of this expansion was under the direction of E. J. Sadler. Adventure seemed to have marked this oil man for its own, for with the advent of the World War he once more became the central figure in a moving drama.

At the outbreak of hostilities in 1914 the three leading oil companies in Rumania—and they retain their authority—were the Astra Romana, which is the Royal Dutch; the Steaua Romana, which was German owned with the Deutsche Bank as the chief stockholder; and the Romana Americana. Rumania did not enter the struggle until August, 1916. This meant that the Steaua Romana kept on producing until that time. The American company made large contracts with the German Government, which was regarded as was any customer. With Rumania in the war, the whole situation was changed. The Steaua

Romana was sequestered and the Germans eliminated as factors in production.

When General Mackensen, fresh from his triumphs in Poland and Serbia, was placed in command of the German forces for the thrust into Rumania in the autumn of 1916, the Allies began to get concerned about the oil fields. They realized that if the Germans conquered Rumania, as seemed likely, an immense store of one of the essentials to the conduct of war would fall into their hands. It had become a war of machinery, and gasoline stoked these machines. The Allies therefore set about devising some plan to confound the Germans. The result was the devastation of the Rumanian oil fields, the one premeditated piece of destruction carried out by the Allies in the whole course of the conflict. The way of it was this:

Upon the suggestion of Lloyd George, who was the dominating figure in the Allied War Council, Maj. John Norton-Griffiths—he is now Sir John—was sent to Rumania with full powers to put the oil fields out of commission. He was an engineer by profession and had served as sapper in the Boer War. He had easy sailing with the German and Dutch companies, but when it came to the American properties it was a different story. We were still a neutral nation and Sadler entered a vigorous protest. By that time the German armies were in Rumania, and Bukharest was being bombed every night. Practically all Sadler's negotiations with Griffiths—the head offices of the American concern are in Bukharest—were between midnight and dawn in the dark, and when the German strafing had temporarily stopped.

The upshot of the matter was that upon Griffiths' written guaranty that the Allies would reimburse the Romana Americana for all losses incurred, their wells were plugged up with scrap iron, their tank farms dismantled, and the machinery in the refinery at Ploesti

destroyed. What was once a prosperous industrial community looked almost overnight like a town in Northern France after continuous bombardment.

Sadler now faced the problem of getting his staff and their families out of Rumania. It was a task that bristled with dangers and difficulties and would have discouraged a man less courageous and venturesome. Egress from the south and west was out of the question for the reason that Bulgaria was a belligerent and the enemy was in Serbia. The only way to safety and America lay to the north through Russia. Even this route was hazardous and uncertain, because the Germans were drawing closer and closer, and the proposed journey lay through a land in the turmoil of war and where transport was at a premium.

Because of interruptions due to the war, the American force had been considerably reduced. In spite of the numerous and intermittent withdrawals during the preceding six months, Sadler was responsible for eighty-five persons, including women and children, and at least one child about to be born, when he set out on a journey that is one of the hitherto unwritten little epics of the war.

In the preliminaries Sadler displayed his usual resource. First of all, he had himself made an American vice-consul by the American minister at Bukharest. This enabled him to give visas at will, and it also invested him with a near-diplomatic status. He also got a strong letter from the Russian minister at Bukharest. He had ample food and money. All this was comparatively easy. The big nut—transportation—now had to be cracked.

The Americans had to be mobilized at Ploesti. The only railroad line open was a single track to Jassy, where there was a junction with the Russian railway that ran to Petrograd. This line had been seized by the Rumanian Government, but with the increasing advance of the Germans traffic was exceedingly uncertain.

Sadler found out that the Rumanian Government was about to run a bullion train to Jassy. Previously all the Rumanian gold had been shipped to Petrograd, but a considerable amount of silver securities, archives, and art treasures remained to be removed and they were to go on this train. It was the one and only chance and he determined to take advantage of it at all costs.

The bullion train was to start from Bukharest. Meanwhile Sadler seized three freight cars and had benches built in them. Into these cars he loaded his eighty-five charges. When the bullion train came along he had it stopped and hitched his box cars to the rear. Before starting Sadler made a speech to his crowd. To them he said in substance:

"You are about to start on a dangerous and difficult journey. You have your likes and your dislikes for each other, and you are going to live in pretty close and uncomfortable quarters for a good while. You must understand that from this time on everybody is equal and must take his share of the hardships. I am in charge and my word goes. If any one of you cannot subscribe to this creed you have ample time to remain behind and take your chances."

Needless to say everybody agreed. It was on December third that this strangest of all journeys to New York by way of Russia began. Bitter wind held Central and Northern Europe in its icy grasp. There was no heat in the cars, and practically all the food consumed had to be prepared in transit. Travel became a frigid joke, because only six kilometers were covered the first day. Everybody suffered, but there was not a word of complaint.

It took nearly two weeks to get to Jassy. Here the freight cars were abandoned because they were built for narrow-gauge tracks. Sadler practically bought three third-class Russian coaches, which are standard gauge.

The second lap of the trip through Russia to Petrograd began.

Every day bristled with anxieties. Only military trains were running, and Sadler had to coerce or coddle the authorities to carry his cars. Another difficulty was that though a dozen different languages, including Japanese, were spoken by members of his party, not one of them knew Russian. Most of the engineers spoke German, but German was forbidden. On Christmas Day, and exactly twenty-two days after leaving Ploesti, the party arrived in Petrograd to find every hotel crowded and no place to park except in the streets.

Once more Sadler rose to the occasion. He had left the party three days previously on a special military train that carried a Pullman in order to get the expectant mother to a Petrograd hospital in time and he succeeded. When he discovered the hotel situation he determined to move his people out of Petrograd without delay. At the American Embassy he was told that it would take two weeks to get the visas for the party. His answer was: "I am going to get them out in twelve hours."

With his letter from the Russian minister to Rumania, backed up by an embassy representation, he persuaded the Russian police to keep their passport office open all night. It was necessary for each member of the party to be photographed according to the Russian regulations. He therefore hired three photographers. On the arrival of his pilgrims he at once shepherded them at the Ministry of Police for the ordeal. Meanwhile he had arranged for a fresh supply of clothing for everybody.

In exactly twelve hours after they landed at Petrograd the oil refugees were on their way to America by way of Finland and Sweden. At Gothenburg passages were obtained on a ship for New York and their troubles were over. A little thing like a German submarine in

the North Sea was lightly regarded after all that had gone before. Six weeks were required for the entire trip. The only casualty was the death at sea of an old woman who was ill when she started.

I have told the story of this stirring journey not only to show how American pluck and enterprise can overcome difficulties in any quarter of the world, but to reveal again the romance and the adventure of the Yankee oil man in his work overseas.

It is typical of the tenacity of the American oil man that before the Armistice was signed—Rumania made a preliminary peace with Germany—Sadler and most of his comrades of the great journey were back on the job. They found a vast mess. With their conquest of Rumania, the Germans set to work to restore the oil fields. They needed gasoline badly, because the only other available source of supply was in Galicia, which had fallen into their hands. When they beat a hasty retreat the petroleum area once more suffered sabotage. The Germans not only burned the American refinery at Ploesti but carried away the bricks. Among the souvenirs left behind was the dead body of a German sharpshooter which Sadler's men found on the top of a derrick.

I visited the American section of the Rumanian oil fields during the summer of 1923. After nearly two months in Constantinople and the wilds of Anatolia, it was like getting back to a little section of America again. At Ploesti, and in the Baicoui and Moreni areas, I met dozens of husky upstanding oil drillers from Texas, Oklahoma, and California—you could never mistake their calling, for there is a distinct oil face and manner—who had all the comforts of home, including a school for the children presided over by a Yankee schoolma'am.

Since the war the American production in Rumania has grown to be 5000 barrels a day and is the second

largest in the country. The Astra ranks first. The Romana Americana has thirty good wells. Altogether 313 have been put down.

Expansion in a big way depends upon just how far governmental regulation will go. Under a new law a majority of stockholders, directors, and workers in the oil industry must be Rumanian. Since the country is perilously near financial disintegration, where will the capital come from? A little thing like sound economics, to say nothing of uninterrupted production, seldom enters into the scheme of supervision-mad countries. It means, in a word, that there can be no real standardization of Rumanian oil production until there is a moratorium on politicians—a European need, by the way, not entirely confined to the land of Carmen Sylva.

The political conditions that obstruct Rumanian oil development are not a patch on the handicaps that beset development in Russia. With Russia we arrive at the most complicated, perhaps, of all world petroleum tangles, and it has a definite American end. Americans today are not only the sole alien producers in the Baku field but should the Slavic production ever become anything like normal again, they will have a conspicuous part, because the Standard Oil Company of New Jersey has acquired a large interest in the Nobel properties. If there is any lingering doubt in your mind about the economic inadequacy of the Soviet system, a brief summary of the oil situation will remove it.

With the overthrow of the Kerensky régime late in 1917, the Bolshevists seized all national property, including, of course, the oil fields, which are the richest in Europe. Then began the debauching of the area which was little less than criminal. Like most socialistic "reforms," the principal sufferers were those at home, because Russia consumes more oil than any other

European country. The firm of Lenine, Trotzky & Co., having put humane administration out of commission, brought the oil industry practically to the same state of ruin. In other words, murder as a fine art extended to petroleum.

In June, 1918, the Russian petroleum industry was nationalized by a decree of the Soviet of People's Commissars. All petroleum properties were declared state property and trade in petroleum and its products made a state monopoly. Administration of the industry was confided to the Chief Naphtha Committee attached to the Fuel Department of the Supreme Soviet of People's Economy. Whatever their other shortcoming, the Bolshevists are not short on titles.

The government then tried to run the oil business with disastrous results. From an annual output of 450,000,000 poods—a pood is 36.1 pounds—before the war, the production soon shrank to considerably less than half. Prior to 1914 there were 4000 flowing wells. Today there are scarcely 800. This tells the story of the Soviet rule.

A decree of the All-Russian Central Executive Committee, promulgated in June, 1922, placed the administration of petroleum stores in the hands of the Chief Fuel Administration, which had complete charge of the sale of all products and stores. Local authorities were not allowed to interfere with the storage or disposal of petroleum products. If any misguided Russian sought to engage in oil merchandizing he was compelled to pay Moscow 50 per cent of his profits. Here you have an interesting phase of commercialized altruism.

Incidentally it is worth noting that since many Soviet officials have their price, a considerable amount of bootlegging in oil began. The unscrupulous official and his no less venal comrade got together, extracted fuel from

the national stores, and sold it surreptitiously in Germany, Finland, or Poland.

As time went on, the powers that be at Moscow began to realize that communism could not run the oil industry. They made efforts to lure foreign countries interested in the Russian oil industry into accepting some sort of agreement or concession, or to exploit the domain in conjunction with the Soviet Government. The usual proposition was to divide the profits on a fifty-fifty basis, the producer taking all the risks. No alien company could do business on this basis and the offers were politely but firmly turned down. Moreover, there was a little string tied to every offer of a concession which stipulated that the contract could be canceled by Moscow if the country of the person entering into the negotiation did not recognize the Soviet Government within five years.

The Bolshevists now began to break into the various European conferences, especially the one held at Genoa in April, 1922. This meeting fairly oozed oil. Previously Moscow had announced that it would deal with any foreign concession hunters at Genoa. The result was that scores of fancy-waistcoated lawyers from various parts of the United States flocked to the city where Columbus was born, eager to make oil deals. They buzzed around Tchitcherin and Krassin—the leading Russia delegates —with such a multitude of offers that the Bolshevists got an exaggerated idea of their importance.

The Allies had hoped that the Reds would come to Genoa with some kind of chastened spirit. Instead, they got an attack of swelled head because of the scramble among Americans for oil rights in Russia. It all resulted in aimless negotiations, because nobody got anything.

When Russia went red in 1917 there were eighteen different foreign groups headed by the Royal Dutch-Shell and the Nobel Brothers, who owned or operated properties

at Baku, Grosny, and Emba, the three largest fields. After the Genoa fiasco they got together in Paris—their number had now been increased by the Standard Oil Company of New Jersey which had acquired a portion of the Nobel holdings—and signed an agreement to present a solid front. They declared that "it was inadmissible that any of the interested parties should prejudice directly or indirectly existing interests and vested rights of other owners dispossessed by the Soviet Government."

In July, 1923, France closed her frontiers to all Russian commercial agents and forbade the use of French capital in Russian enterprises because the Soviet Government entered into a private deal with the Dutch-Shell interests for the sale of certain Russian oil properties. The French maintained that the Dutch-Shell group had broken the pact of Paris. Since they could not punish the Dutch oil men, they took it out on the Russians. Whether the Dutch acted in bad faith or not, they got the hook, so to speak, because Moscow sought to impose its usual fifty-fifty terms and in addition tried to compel the Dutch to repurchase certain property which they owned prior to 1917. It shows that the word "consistency" has been deleted from the Soviet vocabulary.

When I was in London last I asked Sir Henri Deterding, head of the Royal Dutch, what he had done about his vast Russian oil properties. He shrugged his shoulders and replied, "For the present we have written them off our books."

As the Russian oil situation now stands there is no private oil property, and production and distribution remain in the hands of the government. A certain quantity of petroleum products refined at Baku is exported by the Export Administration of the Naphtha Syndicate, which is under the control of the People's Commissariat for Foreign Trade. This administration

has agencies in Berlin and elsewhere, and all foreign firms seeking to buy Russian oil must operate through them.

The tragic consequences of the Soviet attempt to run the oil fields are best set forth in the following statement given to me by an observer on the spot. He said:

"Substitution of payment in kind for payment in cash prevails at Baku. The government has proved itself unable to solve the most formidable of all problems which at present disturbs the Russian oil industry—namely, labor. To check the incessant flight of workers from Baku, especially the skilled ones, a bonus of 15 per cent of the oil produced has been allocated to them, to be distributed by the provincial government in the form of goods. Even this has proved ineffective. Out of a former army of 35,000 workmen only 5000 remain in the Baku field. Misery has gripped the workers, transport is disorganized, and what was once one of the great industrial communities of the world is now in chaos."

The one American organization that has broken into the old Russian oil field for actual operation is the International Barnsdall Corporation. The story of its entry is not without interest. In 1921, Mason Day, then general manager of an American trade corporation in Constantinople, made a trip to the Caucasus to sell automobiles. Here he became interested in the Russian oil situation, and after a year of negotiation with the Moscow government secured a contract to drill wells in the Baku area on the usual Soviet terms. In this case he was to receive his 50 per cent in oil.

When I was in Constantinople in July, 1923, a group of Day's engineers passed through on their way to Baku. The equipment followed soon after. By the time this book appears Americans will probably be producing oil. The Barnsdall deal, however, does not involve a concessession. It is a contract pure and simple to produce

petroleum for the Soviet Government and it is paid for in kind.

The most picturesque American oil penetration on Russian soil, and one which promises larger results, is the deal entered into by the Sinclair Consolidated Oil Corporation for the development of the island of Saghalin, which lies off Siberia. It was to conclude the final details of this transaction that Harry F. Sinclair and former Senator Fall went to Moscow. With the exception of the work of the Standard Oil of California in Alaska, Saghalin will represent the farthest north of the American oil pioneer overseas.

Saghalin once held the world's spotlight. Until the Russo-Japanese War it was all Russian. At the Portsmouth Peace Conference the Japanese got the southern part as one of the spoils of war. A wild and desolate region, it was originally used by the Imperial Russian Government as a penal settlement. It is rich in petroleum deposits, however, and has long been coveted by the Japanese. It was one of the real objectives of the Japanese expedition to Siberia which ended so ingloriously.

Before the war Lord Cowdray tried to secure the whole of Saghalin for his oil empire. One of his American engineers, Roderic Crandall, who is an American, spent a year prospecting and making surveys. With the advent of the Soviet rule Cowdray abandoned the Saghalin prospect. In those earlier red days Saghalin was under the jurisdiction of the Far Eastern Republic, whose capital is at Chita, and it was with this government that the Sinclair people first dealt. Upon the incorporation of the Far Eastern Republic as one of the United Soviet States, Moscow assumed control of all Russian and Siberian oil territory. The Sinclair concession for Saghalin is on the usual Soviet terms and attached to it is a supplemental political memorandum providing for cancellation in the

event that the United States does not recognize the Moscow Government within five years.

The northern part of Saghalin includes 15,000 acres of oil land. Its exploitation by the Sinclair interests may lead to an international complication of far-reaching significance. In February, 1924, a Sinclair exploration party was denied entrance to their domain by a Japanese military force who claimed that the Americans had no right there, despite the fact that at the Washington Disarmament Conference the Japanese Delegation assured our government that their troops would be withdrawn from the northern half of the island. The truth of the matter is that one of the largest Japanese trading companies staked out a claim to the Northern Saghalin oil fields during the Japanese military occupation of Siberia and is not anxious to let go of a good thing. Whether the American Government acts to protect its nationals in Saghalin remains to be seen.

More picturesque than the Saghalin adventure is the Sinclair penetration in Angola, a Portuguese colony on the west coast of Africa. The concession covers 60,000 square miles, much of it on the coast. It was originally a part of the vast grant issued by the Belgian and Portuguese governments, largely at the instigation of the late King Leopold of Belgium, to a group of Belgian and American financiers. The latter included Thomas F. Ryan, the Guggenheims, and John Hays Hammond. Angola is rich in oil and under American exploitation may develop into an extensive field. Four wells have already been drilled.

That American oil enterprise is searching out the remote ends of the earth is shown by the granting of concessions to Yankee companies for prospecting and operating in Abyssinia and Siam. In Palestine the Standard of New York had a concession from the Turkish Govern-

ment before the war covering a considerable area between the Dead Sea and the Mediterranean. It had built a road south from Jerusalem for the transport of its machinery and material when Turkey entered the struggle. In the turmoil and confusion which have developed in that part of the world since the Armistice, all American operations were suspended. England now has the mandate for Palestine and it may interfere with the Standard plans, especially since the Anglo-Persian Oil Company has its eye on the Holy Land.

The most significant American participation in petroleum production overseas, however, is in Mesopotamia, which includes the historic Mosul and Bagdad fields. In a previous chapter I told the whole story of this negotiation. Summed up, it means that the Anglo-Persian Oil Company has offered half its 50 per cent interest in the Turkish Petroleum Company, which has the right to operate in Mesopotamia, to an American group consisting of the Standard Oil Company of New Jersey and six so-called independents such as the Doheny, Sinclair, and Gulf interests. This offer was secured only after Washington had protested against the exclusion of America from the project at the San Remo Conference. A plan for American coöperation has been outlined, and when the concession is finally ratified by the Mesopotamian Government, operations will begin. The French and the Dutch are also in the Turkish Petroleum Company.

Outside the United States, Mexico and Russia, the largest oil fields of the world are in Persia. Here, too, the American oil penetrator is likely to set up shop.

The Anglo-Persian Oil Company, through the D'Arcy concession, controls the exploitation of all Persia except the five northern provinces. Originally a grant for the oil rights in these districts was obtained by a Georgian named Koshtaria, who sold it to the Anglo-Persian

people. Persia, fearing British political as well as economic domination of her country, repudiated the concession and announced that she wanted Americans in the area outside the Anglo-Persian domain.

The offer of a concession to the Standard of New Jersey followed. I have already told the complete story of this episode in a previous chapter. I merely refer to it here because it fits into the narrative of American oil enterprise abroad. The Persian Government looks with distinct favor upon the American oil man because it knows that Yankee capital is not involved in political intrigue. At the present time the financial adviser of the Persian Government—he has little finance to advise—is Arthur C. Millspaugh, an American who was formerly connected with the State Department at Washington.

China has not escaped the American oil net abroad. The Standard Oil Company of New Jersey spent nearly $5,000,000 on exploration work in the provinces of Chih-li, Yunnan, and Shen-si. Petroleum in considerable quantities was discovered, but the problem of transport—a 1000-mile pipe-line was one of the necessary details—was so forbidding that actual production was abandoned for the time being at least. When political order is established in the Yellow Republic and adequate railroads are built, the Standard plans to go into the field in a big way.

To round out the cycle of American petroleum penetration in alien lands I have only to add that the Standard of New Jersey is breaking into Poland, where the rich Galician fields, formerly under the Austrian flag, are located. As in Rumania, this area was bitterly fought over during the World War, and suffered especially during the great Russian retreat in 1915. Galician oil made more than one German offensive possible.

Thus in every part of the world the American oil man is making his impress, all to the end that our industry

and transport can be stoked when the home fields go dry. It is a narrative of persistent and even heroic endeavor, for the Yankee petroleum pioneer has had to combat war, climate, circumstance, and political intrigue. In the end he has more than held his own.

If this widening oil offensive, so vital to our economic well-being, is to march to its largest consummation, it must have the whole-hearted coöperation of the American Government, not only in the achievement of the open door but in firm support of our nationals once they are inside. One reason why the British and the Dutch have been able to fasten their grip on so many petroleum areas is that their foreign offices are squarely behind them. The oil urge has become so keen that nations, and not individuals, are in competition. Hence the vital need of official backing and encouragement.

I can best state one of the fundamental needs of American oil pioneering abroad by quoting a veteran in the foreign field. He said:

"The first step in the standardization of the American oil campaign overseas is the clear enunciation and application of the doctrine that it is the purpose and intention of the State Department to safeguard American enterprise and investments everywhere. The widely disseminated talk that to protect our interests it is necessary to use armed force is merely clever and insidious propaganda of our commercial rivals who capitalize the well-known and rightful abhorrence of the United States to wage war for their own selfish purposes. A clever man does not always use fisticuffs to protect his rights."

A second need is coöperation instead of indiscriminate competition. There are many who believe that a militant American combine for prospecting and preliminary development work abroad is essential. Oil exploration is not only expensive but is usually a gamble. Such a

syndicate could explore the field as a group, thus dividing the overhead cost. Once oil is proved, allocation is easy. The precedent has already been pointed in the organization of the American group for participation in the Turkish Petroleum Company concession in Mesopotamia.

For more than a decade we have been pouring out our oil treasure for the benefit of mankind. We pioneered the industry, and at the moment are providing 72.8 per cent of all production, or more than the combined output of the rest of the globe. While we have been prodigal in the expenditure of petroleum, other nations have conserved their own supply and also seek to exclude us from fields which we had a legitimate right to exploit.

Happily we have at last awakened to the necessities of the situation. Our pioneers are in nearly every foreign field and they are not lacking in courage or capital. With one hundred per cent government support we can make ourselves real factors in the world struggle for the fluid that has not only become a prize pawn in international diplomacy but constitutes the life blood of trade and transport.

CHAPTER V

THE BLACK GOLCONDA

When Uncle Sam took his pen in hand on New Year's Day, 1924, and figured out his expenditures for the preceding twelve months he discovered that he had spent $1,250,000,000 for gasoline alone. As a concrete evidence of the march of the motor the disclosure is sufficiently startling. This huge public bill for fuel, however, had another and far more significant feature. Though it comprises only one-tenth of the total cost of our automobile upkeep, it provoked more agitation than all the other items combined.

Why does the price of gasoline almost invariably irritate the average man who regards the automobile as indispensable to social and business life? Partially because it is a daily or weekly charge, whereas car, tire, and accessory renewal are much less frequent.

Behind this passing, and perhaps superficial explanation is the larger fact that gasoline spells "oil" and oil, in turn, is the one commodity that is born of uncertainty to a heritage of travail. Like the railroad, it draws the lightning of protest and controversy. It can calm every element but itself.

In this procedure petroleum is merely flowing true to form, so to speak. Having become one of the prize disturbers of international accord, it holds the spotlight in the panorama of American events. No Teapot Dome eruption was necessary to fix the industry in the popular mind, or to proclaim its potentialities as inciter of economic and political peace or war.

Examine the oil industry and you find that history is constantly repeating itself. There is alternate over-production or under-production—the proverbial feast or famine. The year 1923, for example, marked the high tide of the American industry in a bonanza yield of approximately 725,000,000 barrels. Yet 1924 may show a shortage. So it goes.

We now come to the story of the American business of oil. It is the romance of the one-time stepchild in the family of minerals who, figuratively, has grown to be a dictator in the domain of raw materials. Yet when John Jones fills the gasoline tank of his car at a service station in town or country he seldom stops to realize the miracle of the oil advance, or the scope of the vast and ramified machine that yields the fluid that starts him on his way again. He knows little of the hazards and handicaps that beset the evolution of crude petroleum after its release from long imprisonment in the bosom of Mother Earth until it gushes forth to heat, light and propel this humming universe.

What then is this drama of oil? How has it evolved from a quack remedy for aches and pains—for such was its first American use—until it stands almost supreme among the essentials to trade and transport? How can production be stabilized so as to prevent the violent fluctuations that derange price and market? By what process has petroleum become the black Golconda upon which the need and desire of man are set?

To get the answers to these questions I followed the trail of oil from Pennsylvania, the cradle of the industry, across the Great Divide to California, where the puny infant industry of the late 50's has become a giant of output. Oklahoma, with her redskin petroleum plutocrats, and Texas, with flush fields and memories of Spindletop, where a whole new epoch in oil began, like-

wise came within the range of the journey. What follows, therefore, in this and in the succeeding chapters, was gained at first hand at a critical hour in the destiny of the business.

From acute dislocation brought about by overproduction in California and Texas, the industry was just turning the corner, when Teapot Dome exploded with a bang. Oil suddenly became the storm center of sensational exposure. The now familiar European mixture of petroleum and politics was duplicated, but on a more heroic scale. So-called distress gasoline, resulting from excess of manufacture, was matched by a kindred distress of mind and moral. Whatever the outcome, one thing is certain. Despite the carnage among reputations, the industry as such, with its bewildering wealth of technical detail and its no less dazzling wealth of return, will remain the same medium for the production of an essential commodity.

There is neither time nor space to linger on history, however strong the temptation to dwell on those picturesque beginnings on Oil Creek near Titusville, where Col. E. L. Drake, in 1859, set up the first of that long chain of derricks which now stretches across the country almost from the Atlantic Seaboard into the very waters of the Pacific. From Pennsylvania southwest through Ohio, West Virginia, Kentucky, Illinois and Indiana, and on by way of Kansas, Oklahoma and Wyoming, to Texas, Louisiana, Arkansas, and California, was the course of the Argonaut who pursued the most capricious of all deposits, which is petroleum. This is why we have such producing fields as the Appalachian, Mid-Continent, Coastal, and California.

The outstanding detail in the birth of the petroleum industry—and it must be briefly emphasized—is that while this country oozed, seeped, trickled, or smelled

with petroleum for years, it escaped commercialization. Man accepted it as liniment and lubricant—even swallowed it under duress—but never bothered whether it reeked with profit or not. All he knew was that it reeked with odor, was an unpleasant neighbor, and he gave it as wide a berth as possible.

Oddly enough—and it shows how strangely circumstance works—long after petroleum got to the big refining stage, its principal present-day by-product, gasoline, was rejected, despised, and even burned secretly at night to get it out of the way. It was the twentieth-century industrial Cinderella. Kerosene held the stage. Yet today gasoline is a world power, stoking alike the furnaces of war and peace production. Because of it, the pride of coal is lowered and the prestige of steam menaced.

We first obtained our kerosene from oil distilled out of coal. This is why it was called coal oil. Later kerosene was refined from petroleum and became for a time its most valuable distillate. Coal-Oil Johnny, whose name is now merely a tradition as a princely spender, got his name and bank-roll out of it.

But before the dawn of that kerosene age was the era of a considerable dependence upon the whale. The sperm oil that came from the head of the sea monster was the best lubricant for machinery, while its wax was converted into the finest candles. From ordinary whale blubber came a part of the nation's illuminant. The tallow candle, however, had the right and light of way.

Those gallant whalers that sailed out of New Bedford felt themselves richly rewarded if they returned from a three years' cruise with a few hundred barrels of blubber to dispel the darkness of the American home. Contrast this primitive and arduous search for crude oil amid the perils of the sea with today's stupendous output of petroleum from a comparatively small and much safer

area, and you see at a glance just what a mighty revolution has been wrought in the relation of oil to production and consumption. For every barrel of whale oil wrested from the deep you now have more than 1000 barrels of crude petroleum.

What most people do not consider, even in a country where every tenth man owns an automobile and all the rest are saving up to buy one, is that petroleum is the one distinctive American industry. Coal, steel, iron, and copper, both in mining and in manufacture, represent a melting pot wherein the brain, initiative, and cunning, as well as the background of many nationalities, have been poured. The development of oil, however, was fostered by our own kind and it retains, in technic and expansion, its original Yankee supremacy. We produce more than 72 per cent of the crude in the world, and although European, Asiatic, and South American petroleum, may, in time, dislodge the American article, the credit for the pioneering is still ours.

Everybody knows that Rockefeller, Archbold, and Rogers rode to fame and fortune on the tide of oil; but they do not comprehend the debt that these men and the rest of the gilded petroleum galaxy, past and present, owe to the breed that really made the business possible. It is embodied in the man who, once having got oil in his system, never got it out. Technically, he is known as the wildcatter, the name given to the individual who drills the first well in any new area.

The narrative of American oil, in its larger sense, is the epic of the wildcatter. Venango County, in Pennsylvania, where the Drake well was drilled, was the nursery of the line. The original, or his sons, are today not only in every American field but wherever petroleum rises to the surface. I have seen them in Europe, Asia, and Africa.

The wildcatter made the oil well bear the same relation to our national development that the covered wagon does to the winning of the West. It remains the symbol of faith and courage. The well and the wagon redeemed an unwilling and well-nigh unresponsive earth.

Like every other type that personified aggressive individualism the wildcatter, with the old gold prospector and his burro and grubstake, is bowing to the inexorable decree of big organization. Once upon a time he could go it alone. That was when an oil well cost a few thousand dollars to put down. Petroleum was then a comparatively simple industry. Now the cost of a well ranges from $30,000 to $300,000 and the corporation, of necessity, has become a wildcatter. Moreover, the world is the market and a vast machine of distribution is geared to the derrick.

Nor does the public, which has adapted itself so readily to the comforts and conveniences of a gasoline age, appreciate the fact that the most astounding economic movement of the past twenty years is the enormous expansion in petroleum. Iron, coal, and copper have grown in use many fold; but oil surpasses them all proportionately and with much room to spare. In the twelve months ending December 31, 1923, there has been an increase of 26 per cent in the consumption of gasoline; 15 per cent in the use of lubricating oil, and 11 per cent in the demand for fuel and gas oil.

A decade and a half ago the petroleum industry existed mainly to supply a small demand for kerosene. Then came the development of the internal combustion engine and with it the quick advent of the automobile. The monster maw of our 15,000,000 motor cars and trucks must be fed. To do this, gasoline consumption has grown by leaps and bounds, until in 1923, out of a total production of 190,000,000 barrels, we consumed and ex-

ported all but 2,000,000 barrels. The per-capita consumption of gasoline in the United States in 1923 was 5.26 barrels, while it was only .18—or less than one-fifth of a barrel—for the rest of the world. Kerosene has become an incident. Once the kite of the business, it is now the tail.

It is difficult to know where to begin a specific appraisal of the American oil business, for it baffles analysis in the same way that the product itself eludes the searcher. To begin with, you have what might be called the major problem as expressed in a growing dependence on petroleum on one hand, and a rapid, almost prodigal, exhaustion of supply on the other. This is a difficult enough issue to meet but it is merely the initial obstacle.

No other kind of initial production anywhere is so full of paradox, surprise, and inconsistency. Once the oil man drilled on a hunch. Today, with every resource that geology and experience can mobilize, the pursuit is still a gamble. There is no royal road to petroleum.

With the word "gamble" you reach one of the first outstanding features. The petroleum activity is the most highly speculative in the world. In the hunt for oil, as in the forecast of the proverbial tomorrow, no man knows what the day will give forth. Producer and layman must take the same chance.

Typical of the vagaries of petroleum is the fact that it is practically impossible to write a standard chemical formula to cover all the grades of the crude product. This is because the physical qualities of the oil in many fields vary. Where the petroleum in the Coastal fields, which comprise South Louisiana and South Texas, is poor—if not altogether lacking—in so-called gasoline content, it is rich in valuable lubricating properties. The product of the Mid-Continent field—that is, Kansas,

Oklahoma and Northern Texas—is ideally adapted for the extraction of gasoline.

You get a hint of the uncertainty of the business when I say that the very origin of petroleum is still in doubt. One theory is that it is inorganic—that is, the development from chemical action on rocks forming part of the earth's crust. Another holds that oil is organic, resulting from the decay of animal and vegetable matter, both land and marine. Only one scientific question regarding it is settled—namely, that it is a fugitive mineral. The wildcatter needs no geologist to acquaint him with this fact. He has learned it out of wide and costly experience.

There is probably more ignorance about oil than any other commodity, and it is not confined to the suckers who buy promotion stock in dry holes or wells that are never drilled. A large number of people, for example, still believe that John D. Rockefeller, the elder, spends all his wakeful hours at 26 Broadway, in New York, wearing out his fingers and scissors cutting bond coupons. As a matter of fact, the total Standard interests now have more than 300,000 stockholders and comprise some 40 per cent of the business. Mr. Rockefeller has not visited a Standard office since 1896.

The fundamental difficulty in the pursuit of oil—and it invests the whole industry with the element of chance—is the little-known and no less appreciated hazard of production.

Petroleum is not an annual crop. Unlike live stock, it cannot be branded or reproduced. The man who drills a well ordinarily leases the ground from the owner, and usually it is a comparatively small parcel. He must get action on the bonus that he pays for the lease or he loses. This explains so-called competitive drilling, because a single producing well in what is called a proved—that is, a

producing—area is likely to drain the oil from the adjacent territory. Oil leases expire and time is therefore one of the essences of the contract.

Now you begin to see why, with the discovery of rich pools, such as those at Santa Fé Springs, Signal Hill, and Huntington Beach in Southern California, there is such a mad rush of drilling, resulting in a vast, unchecked flood of oil, with the inevitable overproduction. This is especially true where wells are put down on town-lots. The oil must be garnered while the going is good, otherwise the fellow alongside will get yours. Human nature is one of the real factors that drives the derricks. In other words, it is only by reducing oil to possession—that is, by actually producing it—that ownership can be created. Real control, as well as apportionment to the needs of industry in surplus times, is well-nigh impossible. To put this in another way, let me quote one of the best known of American producers, who said:

"Oversupply must spend itself, as does a flood or a tornado, before calm settles down and the result can be calculated. The source of supply is directly governed by the accident of the discovery of new pools and the rapidity with which they can be drained after discovery. Hence either an oversupply or a shortage constantly threatens. Prices react readily to supply, although supply may not always react readily to prices."

In the conditions just described you have the crux of the oil industry, and they play no favorites. They explain why a business with a total investment of more than $9,000,000,000, whose fleets of tankers ply the Seven Seas, whose 135,000 tank cars are on every railroad, whose 60,000 miles of pipe line gridiron the country, and whose output is absolutely indispensable to the conduct of life and commerce, up to barely half a year ago could base its estimates on only a six months' supply of raw material,

while at the time I write, thanks to the overproduction of 1923, it can calculate on an eight months' reserve.

Here, too, is the reason why the range of price of the crude article varies more in oil than in almost any other huge undertaking. In Texas, for example, following the unleashing of the Spindletop flood, petroleum sold as low as three cents a barrel. Even the Mid-Continent output, which is so well adapted for refining into gasoline, has been forty cents a barrel. Yet in 1920 it fetched $3.50. No wonder the pioneers called the industry a game, the title that has clung tenaciously ever since, despite expansion to the proportions where organization, manufacturing, and transportation facilities vie with those of steel and coal.

With coal, iron, or agricultural products the reverse is true. As more than one big producer has pointed out, the miners of minerals can decrease their output with no loss in title to that which they leave undisturbed. A coal or iron area may be blocked out, and the owner not only knows just what he has, but just where it is. Moreover, it is accessible whenever he wants it. The farmer likewise can rotate his crops or let his fields lie fallow. In these instances the producer can adapt his supply to demand.

Not so with oil. It is migratory and must be trapped once it pours forth from its age-old receptacles. It flows, or must be pumped, until exhaustion ends the chapter. The only way to stabilize production is to cease drilling. This seems a simple formula, but the moment the offensive for new areas stops, the growing demand for gasoline, lubricants, and fuel oil consumes the available stores, and wildcatting must begin all over again.

No detail of the oil industry has stirred the popular imagination quite so much as what might be termed the fortune phase. Oil seems to be synonymous with fabulous

return. Andrew Carnegie's Millionaire Club, enriched by the United States Steel merger, was a group of pikers alongside the coterie that has made fortunes in oil. The greatest single accumulation of wealth of modern times started in a modest marketing and refining business at Cleveland and rolled up the Rockefeller billion.

By this performance oil did much more than make Rockefeller the present-day Crœsus. It gave every unscrupulous stock promoter the opportunity to say to his gullible victims, "You can do likewise." As a selling point in stock promotion its only rival has been the original Bell telephone stock. The arguments have been overworked and have drained the people's purse of billions of dollars.

Yet you have only to run the range of the American oil fields to find that linked with the hot touch of the promoter is the Midas touch born of happy accident. For every Klondike and Kimberley there have been a dozen Rangers and Burkburnetts.

Take the Ranger field, which is in North Central Texas. For years the farmers of that vicinity were pinched by poverty and racked by vicissitude. Drought ravaged their possessions. A public fund had to be raised to relieve the acute distress. Suddenly oil was discovered on a farm and wealth flowed in almost in competition with the tide of black fluid that gushed from the ground. It is a curious commentary on the human being that in such times all sense of proportion is lost.

The story is told at Forth Worth of a farmer who received $500,000 for his land. When he told his wife that he was rich and wanted to do something for her, her sole comment was: "I wonder if we could buy a new ax. The old one has several nicks in it."

The wife of a neighboring farmer, who got $100,000 for the lease of part of his acreage, bought a bottle of olives

with her first money. Her husband asked her what they were.

She replied: "They are olives. All the best hotels have them and I think we can afford to eat them now."

Another woman, whose husband was the owner of one of the original sections of the Burkburnett field, arrayed herself in newly acquired diamonds and went to a Dallas restaurant, determined to order the most expensive food she could find. After a long study of the card she finally decided on ham and eggs! These stories could be continued indefinitely. The point to be emphasized is that in no other activity has wealth broken so swiftly and with such amazing results as in oil.

Oil fortune does not draw the color line. For years the Osage Indians were nomads, merely wards of the masterful white man. From the Far South they trekked to Kansas, and finally, by the grace of government, settled in Oklahoma. On their reservation the Burbank and other oil fields were brought in, and a golden flood literally dropped into the blankets of the red men. They are today the wealthiest people per capita in the world. If Alexander Pope had known about them he might easily have changed his famous line so as to read, "Lo, the rich Indian."

Each one of the 2229 surviving members of the tribe had a minimum annual income of $12,000 in 1923. One of them, Mary Elkins, received $103,000 as her share that year. She happens to be the last surviving member of her family and inherited the rights of all her kin. During the past few years the Osages have piled up in royalties and lease money a gross principal of more than $150,000,000, and it is growing fast.

The result is that the red man and the big red car are inseparable at Pawhuska, the seat of the reservation. One Osage, in the fullness of his oil prosperity, got tired

of riding in a seated position in his limousine and bought a motor hearse so that he could sleep at ease as he traveled. The whole story of the Osage Indians, however, will be told in detail in a later chapter. I mention it here to show the freaks of fate in petroleum.

Hardly less picturesque is the romance of the few Creek Indians in Oklahoma, to whom the famous Cushing pool was a blessing that worked in strange ways its fruits to bestow. The John D. Rockefeller of the Creeks is Jackson Barnett, who, unlike his Osage brothers, presented the extraordinary spectacle of having more than $1,000,000 to his credit in the bank without the resource of capacity to spend more than fifty dollars a month. His sole needs were a cabin, a pipe, a gun, simple food and a pony. When a white woman finally married him his scale of expenditures increased. Even then the government was put to some trouble to find an outlet for his increasing income.

These noble red men and their equally fortunate white farmer brothers, whether in Oklahoma, Texas, California or elsewhere, have been raised to affluence because of the amazing increase in the price of oil lands. Twenty years ago you could least a tract, even in the Osage country, as cheaply as twenty-five cents an acre, and much of it went begging.

In 1922 the Gypsy Oil Company, the Oklahoma subsidiary of the Gulf, paid $1,600,000 for a lease on 160 acres in the Osage territory, or at the rate of $10,000 an acre. Some smaller pieces fetched $15,000 an acre. This record was surpassed in 1924 when the Cosden Oil and Gas Company gave $1,955,000 for a quarter section. For a similar parcel at the same sale the Prairie Oil and Gas Company paid $1,825,000 and the Midland Oil Company $1,580,000. It is well to remember that these prices were paid merely for the right to drill on this ground. The

Indian owner also receives a royalty of one-fifth or one-sixth of the market price of all the oil produced.

So keen is the struggle for these Osage lands that they are sold at auction. In summer the auctions are held in the open air under a tree in Pawhuska, which is called the Million-Dollar Tree. At the June sale in 1922 sixteen leases brought a total bonus of $10,504,000, or an average of $656,500 a lease. In 1924 the receipts for two days were $13,485,000.

Wherever you turn in oil you encounter vagary and inconsistency. The graveyard of high hope or an exhausted area may skirt an overnight El Dorado. Take the Powell field, the wonder domain of Texas, and the largest producer yet discovered in the whole United States. To understand what has happened here you must first be told that oil is found in sands. Petroleum permeates the sands precisely as water soaks into a loaf of sugar. The sands become a sort of sponge. Sugar melts, to be sure, and the sands do not; but the process, for popular explanation, is the same.

In 1895 oil was discovered at Corsicana in shallow sands. It was a moderate production and was believed to represent the capacity of all the contiguous territory, including the present Powell field, which is located nine miles away. For twenty-five years the oil operators at Corsicana literally walked over the Monte Cristo riches of Powell without knowing that they were treading on a treasure-trove. This failure to discover the mother pool was almost entirely due to the old hit-or-miss, or oil-is-where-you-find-it methods.

The discovery of the Mexia field, in the same area as Powell and part of a vast oil-bearing zone, technically known as the Balcones Fault—a fault is a fracture in the earth—that traverses Texas, led to the bringing in of the bonanza field. The Humble Oil and Refining Company,

one of the four leading Texas companies, in which the Standard of New Jersey owns a 60 per cent interest, began, in 1922, to prospect and develop a considerable part of what is today the Powell field, which at high tide in 1923 produced 356,000 barrels a day—the American record.

Many of the distinct—one might say fantastic—phases of oil production are emphasized in the Powell field. First of all is the fact that it was overlooked so long. It is almost inconceivable that what is now called the backbone of the petroleum industry of Texas should have had its presence unsuspected for more than a quarter century, although it was practically flanked by a forest of derricks. There could be no more typical illustration of the hazards and uncertainties of the great game of oil-finding.

Another feature is that the original operators in what is known as the Corsicana-Powell district did not profit by the discovery. The Humble Company, which has the largest interest in Powell, was a rank outsider and only got in after Mexia had given the cue.

The third and probably most significant aspect is that it represents the value of geological investigation as an aid to production to a greater degree than has ever obtained in any other American oil locality. Out of 195 wells put down by the Humble, 190 were producers. It was not a case of the traditional hunch that oil was there, but straight science. The area was combed by geologists until every subsoil mystery had been revealed.

This leads to what is, with the possible exception of the tremendous expansion of the industry itself, the outstanding fact in the progress of the business. It lies in the very thing that made Powell possible—namely, geological knowledge. With it we reach the crossroads of production—the borderland, so to speak, between the old and the new eras—and it is well worth our while to pause a

moment and see just what it means. Much of the future of oil depends upon just how far this invoking of science can go.

To appreciate the value of this fresh tack that the industry has taken you must know that out of the immense area of the United States—approximately 2,000,000,000 acres—only 2,000,000 acres have so far produced oil in commercial quantities. It is accepted that 60 per cent of our soil will not produce oil under any circumstances. The remaining 800,000,000 acres of possible territory is not all good prospect. Indeed, experts have gone so far as to state that only 4,000,000 of these acres are available as potential petroleum fields.

Although the oil industry is now more than sixty years old, it is only in the last ten or twelve years that general use has been made of geology. The pioneer oil man scoffed at the geologist, called him a long-haired highbrow, and said the drill was the only test. Yet in the early days, wildcat tests were not always located entirely at random. It is an old saying in the business that the best evidence of oil is oil. Therefore it was believed that the vicinity of natural seepages was favorable territory for development. As a matter of fact, an oil seepage is an outcropping of an oil-bearing sandstone from which all the commercial qualities of the hydrocarbons—the principal ingredients of petroleum—have had an opportunity to escape into the atmosphere. Contrary to the general belief, a seepage, therefore, is no safe criterion for the accumulation of oil in the vicinity.

Again, there were operators—and some of the small independents still follow the same rule—who worked on hunches, which were influenced by real or fancied resemblance of the topography or vegetation to that occurring in some developed area with which they were familiar. Still other operators made a practice of assembling blocks

of acreage and drilling on them without setting up any claim that local conditions were in any way favorable. It was to finance such enterprises that the oil-stock promoter first launched his offensive. The natural result was that the public paid for a great many dry holes.

Then, too, your old-timer did not spurn the use of a wiggle-stick, which has so often been used to locate water; and also a doodle-bug, a mechanical contrivance that was supposed to indicate the spot where a well could be drilled. Usually, however, it was a case of hunch. A considerable portion of the huge early losses in wildcatting grew out of the failure to make a proper scientific examination of the area to be drilled.

Today the big oil company would face bankruptcy if it operated on a hunch. Most of the finds of the last five years have resulted almost solely from geological preparedness. The average man does not realize, perhaps, that in every important oil organization there is a biography of each well put down, whether it yields oil or not. It is a so-called graphic log which shows in colors the formations that the drill penetrates, foot by foot. Here is the vivid story of the well from the moment the first earth is turned until oil is struck or the drilling abandoned. Specimens of all rock and sand encountered are carefully labeled and preserved. These exhibits form the basis for the estimate of possibilities in other areas. There are maps of the subsoil that might have been made by some super X-ray penetrating the heart of the earth.

Not only does every highly developed oil-production concern know what its own forces are doing, but also what every competitor is literally driving at. The oil fields are scrutinized by so-called scouts, who send in to their home offices daily reports of the progress made by all the wells in their territory. These reports are tabulated and kept almost up to the minute.

At Tulsa, for example, I wanted to know what progress was being made with a certain well in the Burbank field, and I asked the manager of one of the biggest production companies there to tell me. He took me into what is known as a map-room and pulled out a long envelope upon which was written the number of the well I had in mind. In less than five minutes he had told me when it was "spudded in", as the beginning of drilling operations is termed, and the exact depth registered the day before, together with every formation that had been encountered. In oil as in everything else, knowledge is power.

This elaborate preparation not only operates in the fields of actual production but in the unknown areas. The agricultural explorer who secures foreign lands for new fruits and vegetables has his double in the American oil hunter—usually a geologist—who is on the eternal quest for what has become the most precious of all minerals. Despite all this acquired geological experience and knowledge, the industry awaits the great discovery that will eliminate the dry-hole hazard. Because of it, uncertainty still claims petroleum for its own. Geology has merely minimized the elusiveness of the product.

Yet without geology as an aid to oil finding the big companies would never have paid those tremendous prices for the right to drill on a quarter-section of land in the Osage reservation. That science did not err is proved by the fact that they are to the good on the transactions.

The scientific aid to oil discovery has added to the overhead of production, but it is a mere trifle in the constantly expanding cost of doing business. With the widening of the oil empire has come a deepening of the well. In the early days a 500-foot well was a marvel, and it seems only yesterday when 1500 feet seemed a great depth for the drill to go. A familiar instruction was "Quit at 2000 feet."

These instructions were seldom disregarded. There was one historic exception, however, and it led to the opening of the Ranger field. W. K. Gordon, who prospected and put down the first well, like many of his colleagues was an optimist. When he reached a depth of 3235 feet his backers, who happened to be a firm of well-known New York bankers, wired him instructions to abandon the hole. Confident that his judgment was sound, he continued on his own responsibility, and at 200 feet farther down got oil. On such chances as this, vast productions have hung more than once.

During the early days of Ranger it is estimated that the promoters of the original properties could have sold out for more than $125,000,000 cash. They held on, with the result that the market price of the stock today represents one-tenth of this sum. One problem in oil is to know when to let go.

In contrast with the comparatively shallow depths of other days reached by the old-standard drilling, the rotary drill now plows down more than 7000 feet, to a depth that would have deterred the early producers. This deeper drilling is not only one of the bulwarks of the industry in new fields, but has helped to salvage old ones. Many a hole was abandoned as dry when 500 or 1000 more feet of penetration might have struck oil.

Fifteen years ago the usual cost of a Mid-Continent well—drilling is always paid for by the foot—was from $3000 to $5000. Today each Osage well sets the driller back $40,000. The high-water mark in production has been reached in California, where the average cost is seldom less than $100,000 a well. I saw a dry hole at Santa Fé Springs that represented an investment of $350,000. In this increase in cost you have an inkling of the capital requirements of big production and the consequent risk.

In the sixty-five years that represent the span of the oil industry in the United States approximately $12,000,000,000 has been placed in the legitimate channels of oil development and operation, according to the most reliable estimates. This, however, does not represent the vast sum wasted by the public in fly-by-night or fraudulent promotions. Conservative producers, and by them I mean the heads of the great and established companies, maintain that only $7,500,000,000 has been returned from the sale of the crude. Thus the producing industry still has $4,500,000,000 coming to it. If these figures are accurate they merely prove the old adage that more money goes into the ground than ever comes out of it.

Oil-well performances and statistics are dull things, but when you dissect them they can take on human qualities. It is not stretching the point to say that a well has temperament. The hazard and uncertainty, to say nothing of the preliminary cost of production, are sufficiently trying; but fresh anxiety invariably develops the moment the oil begins to flow. There is the immediate concern as to how long it will last. Will there be a rush that spells overproduction, or will a corresponding leanness mean shortage? This is why the industry is in a constant state of either elation or dejection. Oil has no middle ground. It is only because the average oil man is the world's champion optimist that he and the business endure.

As you diagnose production you find a curious parallel with the human being. The gusher is like the loud and boastful individual. He may make a favorable impression, but before long he exhausts himself. So, too, with many big producing wells. They are spectacular, but they do not continue to spout. The real standby of the business today is the placid fifty- or even twenty-five-

barrel-a-day property that remains on the job all the time. It is precisely like the quiet and unobtrusively efficient person who wears and works the best.

What are the facts? On the first of January of 1924 the number of producing wells in the United States was 285,000, yet the daily average production was only seven barrels for each, and this estimate is considered high. This slight average shatters the popular conception of what an oil well does.

During 1923 exactly 24,438 wells were completed in this country. This is at the rate of about sixty-seven a day. Of this number 17,318 brought in oil, 2011 were gas wells, while 5329—or more than one-fifth—were dry holes. As most people know, when you drill for oil you sometimes get gas or both.

Another side-light on the perils of production may be gained from the results of three years' drilling east of the Rocky Mountains, classified as to output. Out of a total of 78,502 wells put down, 19,784, or a little more than 25 per cent, were dry. Only 746, or less than 1 per cent, produced 2000 barrels a day or better. The major number of producing wells—27,570—yielded twenty-five barrels or less.

Considering production in still a different way brings the amazing disclosure that the great bulk of oil comes from comparatively few wells. At the risk of imposing more dull statistics, let me present the figures. In August, 1922, it took 78,651 wells, or 28.08 per cent of the total number, to produce approximately 1,400,000 barrels a day. In October of 1923, 6464 wells, or 28.08 per cent of the total number, to produce approximately 1,400,000 barrels a day. In October of 1923, 6464 wells, or only 2.27 per cent of the total number, produced an equal amount of oil. This was due, of course, to the sensational production in the Southern California and

Texas fields. This relationship practically remains at the time I write, although many of the flush fields have passed the peak or are on the down grade, thereby increasing the number of wells for a given output.

At the time when our daily production was about 2,250,000 barrels E. W. Marland estimated that 5000 wells were producing 1,250,000 barrels a day, or more than half. This was an average of 250 barrels to the well. During the same period 250,000 wells were only producing 250,000 barrels a day, or an average of one barrel to the well.

More significant is the rapid diminution of output, because here is where the future of the industry is affected. The average 100-barrel well in the famous Cushing field of Oklahoma declined 70 per cent in its daily production in one year, and by the end of the second year had dropped to less than fifteen barrels a day. Similarly, in Burkburnett the average 100-barrel well decreased in one year to fifty-five barrels. Frequently a well capable of producing 1000 barrels in the first twenty-four hours will produce less than 500 barrels daily within a week.

Nothing is more mournful—especially to the owners, for sentimental interest yields no return—than the decline and fall of bonanza production. With this statement there at once arises the question: What of the fields of yesterday? It evokes a pathetic panorama.

There was a time when Spindletop, near Beaumont in Texas, held the heart and hope of an oil-mad world. It was the Klondike of petroleum and witnessed the greatest rush since that eventful day when Drake drilled the first well on Oil Creek. It put the oil stock on the popular map to the acute distress of many. The Lucas gusher, the discovery well, as the first well in any field is called, was the wonder of the day.

Today Spindletop is practically petered out. I went

there to see the aftermath of what had been a scene of frenzied output. The 140 acres where 500 derricks had creaked in the golden age of the field were almost as still as a graveyard. From a few wells a trivial amount of oil was being pumped. Decay and desolation were the dominant notes.

Take the Glenn pool, at one time the marvel of Oklahoma. In 1911 its daily average reached 83,370 barrels. Its output is now negligible. Cushing pool, a still greater flush field in the same state, reached a maximum of 269,735 barrels a day in 1915, while on February 1, 1924, it was producing only 24,100 barrels.

Turn to the more recent fields whose remarkable history is still fresh in the public mind, and you have the same story of decreasing streams. Powell, for example, went from 356,000 barrels a day to 100,000 in less than two months. As I write, its output is under 90,000 barrels.

Those miracle South California areas, where fortunes blossomed overnight amid the orange groves, or in sight of the sea, are likewise on the down grade. First among them is Santa Fé Springs, where a maximum of 322,522 barrels a day was produced in August of 1923. Yet by the end of January, 1924, there had been a decline to a daily 133,000 barrels, while the geological forecast for January, 1925, is for only 36,000 barrels.

Huntington Beach has not escaped the Nemesis that pursues every field, for her peak of 110,228 barrels a day, registered in August, 1923, had shrunk by the end of January, 1924, to 64,000, with every statistical estimate and calculation making for a mere 14,000 daily output a year hence. The only member of the California bonanza trio that holds its own is Signal Hill—where the 1923 maximum of 244,527 barrels a day is only slightly reduced. But here, too, there must be the surrender to the inevitable decline for the reason that, based on geo-

logical expectation, the 1925 maximum will be approximately 43,000 barrels a day.

Thus, like man, the days of the oil well are numbered. The transitory quality of petroleum stirs the incessant search for new fields. Uncertainty, like necessity, is the mother of production.

It is almost impossible to estimate what might be called the standard life of a producer. As I have already pointed out, the big gusher expends itself and can become commonplace in a comparatively short time. I saw wells in California that had produced steadily for nearly thirty years. The same is true in some parts of Pennsylvania and other sections of the Appalachian field.

One of the striking revelations of the whole business is that no well is ever abandoned so long as it produces even half a barrel of oil every twenty-four hours. Some of the veterans exhaust themselves temporarily after producing a single barrel. They are then what is known as pumped off. After an interval, say of a day, another barrel is pumped. Despite the intermittent overproduction—these flush periods come in cycles like panics in the financial world—every gallon of crude is stored these days.

This storage represents one of the stabilizers of the industry, because it is the insurance against shortage at the well. It is the other side of the one-time picture of chronic economic waste when gushers ran wild, flooded the adjacent country, and frequently went up in flames. At Spindletop, in order to show off wells to prospective purchasers of stock, thousands of barrels of oil were let loose at random. That extravagance has long ceased. The biggest gusher can be tamed almost instantly—and it is.

On January 1, 1924, 362,000,000 barrels of crude were stored in tanks and reservoirs throughout the United

States. In California nothing impressed me quite so much as the sight of a covered concrete storage bowl that contained 3,000,000 barrels of petroleum. This receptacle could have held half a dozen football fields. As I looked down on this sea of oil it seemed to symbolize something vast, Stygian, and terrible. A Zola might have invested it with the long-drawn significance of the æons of time consumed in the making, and linked with it the potential power and potency to human life and industry that it represented.

Such are the high lights of a business which, embodying four distinct phases—production, refining, marketing, and transportation—has become a super-industry touching every individual, no matter what his station, in some direct or indirect way. Yet, as I have pointed out, it is reared on the hazard of output. This is why the problem of the future supply is perhaps the most acute of the many that loom ahead.

That the rate of petroleum consumption is increasing faster than the rate of supply is generally accepted. Oil reserves in the United States are being more rapidly exhausted in relation to demand than any other economic mineral. Whence will come the gasoline of tomorrow? The whole vast and vital issue of the replaceability or conservancy of our natural resources comes at once into question.

Past experience proves that war has been the sole mobilizer and controller of raw materials, and future wars may be waged to guarantee their sources. In America, as elsewhere throughout the world, the oil field is already the battleground of a fierce, if bloodless, struggle.

You may ask at this point why the American producers do not coöperate to standardize the supply and prevent recurrent over-and under-production. To do so would at once be running afoul of the anti-trust and anti-conspiracy

laws. The one gentleman's agreement to curtail production so far was in the Burbank field last year.

This was possible only because all the proceeds from the Osage territory are dumped into a common fund for the benefit of the Indians, and the government did not insist upon immediate drilling. In ordinary circumstances, and because wells drain one another, every owner wants his property developed as quickly as possible. This is why production is always so frenzied.

Can Uncle Sam turn the trick? If we are to abandon our much-prized individualism for state socialism—that is, regulation—it may be with oil first. Will the government, however, have the courage and tenacity that drove the wildcatter to open up the new fields that have made our oil domain possible? Probably not, because government stewardship of the oil industry, by common and experienced consent, would stifle the very competition that makes the wheels of the industry go round, and play havoc with price.

Whether we have one, two, or three decades of oil supply still under the ground is not the point. The world—ours to a constantly growing extent—is hitched to the star of gasoline. In the past five years the number of automobiles in the United States has doubled. Our 15,000,000 motor vehicles of today may be the 30,000,000 of six years hence. We own 80 out of every 100 motor vehicles in the world. We cannot go back to the horse-drawn vehicle. A large percentage of the machinery of America today would stand idle if its lubrication depended on the fish oil and animal fats, as was the case before the great era of petroleum refining.

Inevitably we must delve into foreign soil to get the product so indispensable to our social and industrial well-being. It means that the business must travel farther and farther for its crude every year, with expanding overhead

cost. Once more a query looms. This time it concerns the far-flung plant built in the United States to produce, pipe, refine, and transport petroleum. What of its fate?

Does it mean that the salvation of the industry lies in a more intensive refining of the crude on the one hand, and a corresponding perfection of carbureting mechanics on the other? The French and the British get much more mileage out of their gasoline than we do. It merely emphasizes the waste that is the middle name of the American. Again, if we bring refining to the stage where it can convert petroleum into gasoline on a 100 per cent basis, what of the fuel oil, which is almost equally essential? The oil business is one question after another.

These are the problems of petroleum. They have been marshaled to give some tinge of the atmosphere that pervades the business. It is not always a glittering world of quick return to the man or corporation that assumes the risk. Often it is the innocent bystander in the shape of the fortunate farmer who culls the easy yield.

The preliminaries have been outlined. We can now see how our empire of oil, with its endless chain of production, unfolds.

CHAPTER VI

THE CALIFORNIA EMPIRE

Once the name of California was inseparably linked with the gold of the gulch. Today, excepting only sunshine and tourists, it is synonymous with the black gold of commerce which is oil.

The rush of treasure seekers following the famous find of 1849 has been more than matched by the gush of petroleum in the great overproduction that the industry registers. Thus bonanza history repeats itself, but with this difference. The yellow metal that lured the Argonauts across the perilous plains was not necessary to life and trade, while its greasy but no less lureful successor is an essential commodity.

California stands supreme among the American oil-producing fields. During 1923 she not only doubled her output of the preceding year, but her total was nearly one-third of that of the whole United States. Today she still holds the balance of petroleum power.

Moreover, in California oil is coal to a greater degree than obtains in any other American region. Here it was first used in the railway locomotive, thus inaugurating a notable advance in the economy of transportation. Within her confines are two of the Naval Reserves which drew the national legislative lightning. Teapot Dome has its counterpart in the Elk and Buena Vista Hills.

There are many other details that make the California domain unique, even distinct among the oil fields in the United States. Until the unprecedented overproduction of 1923 she was practically a self-contained oil empire, supplying her own needs. She had enough surplus to ship

to Peru and Japan with an occasional cargo of gasoline to the Atlantic Coast. It was not until 1923 that the flood of her crude began to stream in tankers through the Panama Canal to upset price schedule and play havoc generally with the produce of the Mid-Continent and Texas fields. In September of 1923 more than 12,000,000 barrels of crude were shipped from Los Angeles harbor, making it the first of all oil ports. Over half went to the Atlantic seaboard.

California wells are at record depth and the overhead cost, in consequence, at an equally record height. In the southern section, so-called town-lot drilling has reached the last word in productive competition. At Burkburnett, Ranger, and elsewhere in Texas, wells were drilled in the heart of fairly populous communities but never to the extent that prevails at Long Beach. It is the center of the most prolific oil area in the world.

Indeed the narrative of oil discloses few, if any, events more sensational than the phenomenal development of the pools in the Los Angeles basin. An orgy of production was matched by kindred frenzy of stock promotion. The orange groves that once groaned with fruit became mines of mineral wealth with yields more gilded. Hence in California we will begin our progressive journey through the American oil domain.

California oil, like California mining, drips with romance and adventure. There was gun-play in the early days of drilling in the San Joaquin Valley and a hardy breed developed. In many respects they were the doubles in courage and initiative, as well as in self-made success, of Huntington, Stanford, Hopkins, and Crocker, the famous "Big Four," whose railroad enterprise really opened up the Golden West. Some of them were the fathers of the great companies that now dominate Pacific Coast Petroleum.

They dug wells with pick and shovel, or employed the primitive "spring pole" method of drilling which was operated by hand. From these holes, which were only fifty or sixty feet beneath the surface of the earth, have sprung the 7000 foot depths and more of this day.

Every Huntington or Stanford has been matched by the type of achievement represented by Lyman Stewart, Captain John Barneson, Thomas O'Donnell, Captain William Matson, K. R. Kingsbury, Paul Shoup, and E. L. Doheny. No group anywhere in control of a potent economic situation presents such a varied human-interest approach. Stewart was the son of a Pennsylvania tanner and he made the Union Oil Company possible. Barneson, an intrepid sea captain, turned to oil after a life of adventure on the deep and fathered the General Petroleum Corporation. Matson founded a steamship line and then preached the gospel of oil for ships, and his heritage is the Honolulu Consolidated. O'Donnell was a roustabout, as a laborer in the oil fields is known, and worked his way to the stewardship of California Petroleum. Doheny evolved from obscure prospector to multi-millionaire and master of the Pan-American. Kingsbury is the college student who stoked a furnace before he became a Standard chief. After an apprenticeship as newsboy, Shoup went through the grill and mill of railroad routine until he became head of the Southern Pacific and then started the Pacific Oil. I have only listed the outstanding figures.

In 1870, a well in Pico Canyon (it was the second in the State) produced the first oil handled by the Pacific Coast Oil Company, the predecessor of the present Standard of California. It means that as in Pennsylvania, oil is a sort of tradition of faith, hazard, and output in California. Many of the original producers came hot foot from Oil City and Bradford in Pennsylvania

and were the outposts of the line that made a large part of the American petroleum map possible. They were on the job on the Pacific Coast before Kansas, Oklahoma, and Texas were annexed to the statehood of oil.

As a matter of fact, for more than a century prior to Drake's historic initial well near Titusville in 1859, petroleum had been known and employed in California. Indians used it to mend their mortars and pestles and to cement basketwork. It was also a remedy for coughs and colds. The Franciscan Fathers, whose picturesque missions extended from San Diego to San Francisco, utilized asphalt for roofing. The first producing well was drilled less than ten years after the oil excitement first let loose in Pennsylvania. The principal products were asphalt and distillates for lighting and fuel, and for spraying fruit orchards.

The recorded production of California dates from 1876, when approximately 12,000 barrels of crude were produced. Contrast this puny output with last year's 263,729,000 barrels and you get some idea of the miracle that has been wrought. Early production was confined to the Santa Clara Valley until 1880 when wells began to dot Los Angeles county. In 1893 petroleum was discovered by E. L. Doheny in the city of Los Angeles, and this resulted in the first big overproduction.

It was a heavy fuel product and there was so much of it that the price dropped to 25 cents a barrel. The only way to dispose of it was to create enterprises that would use it. Oil-burning apparatus was introduced into stationary power plants and an effort made to induce the railroad companies to use oil on their locomotives. This led to the beginning of the oil era on our railroads.

Before the Los Angeles oil period at least one western road had experimented with oil for fuel. In 1886 Leland Stanford, President of the Central Pacific, and one of

the "Big Four" who had built the western end of our first trans-continental system, was anxious to cut down the cost of fuel which is the ever-present railroad problem. Various tests were made on the line between Sacramento and Davisville. A Peruvian oil was used. Strange as it may seem in the light of present-day development, the experiments were abandoned because of the high price of the crude. Even stranger was the fear on the part of the railroad officials that there might not be a permanent supply of petroleum. This is directly in line with a little-known early apprehension of the old Standard Oil Company. It refrained from constructing costly refining plants for the same reason.

Credit for the first practical demonstration of fuel oil on an American railroad is divided between the Santa Fé and the Southern Pacific. The latter had a peculiar interest in the successful outcome of the conversion experiment because, as you shall presently see, it owns one of the great oil-bearing regions in California which was the bone of a bitter struggle with the government.

Be that as it may, the evolution was gradual because there was ever present the concern that the oil supply might give out and the railroad be compelled to return to hard fuel. The change was so made that an oil burner could be turned back into a coal burner in a short time. This precaution proved to be unnecessary.

Although the Southern Pacific was probably the pioneer in America and ran the first regular oil burner, a considerable part of the credit for the oil-bearing locomotive is given to K. H. Wade, General Manager of the Santa Fé. In 1890 he enlisted the coöperation of our commercial attachés throughout the world in gathering information with regard to the use of oil in locomotives. He heard of a burner in use on the Central Railroad of Peru which was the invention of William Booth, a Scotchman em-

ployed as master mechanic on the road. He sent for Booth, who installed the first oil burner on the Santa Fé locomotive within forty-eight hours after his arrival.

Considerable difficulty was experienced at first in securing a firebox that would stand the concentrated blast of the oil flame. The most refractory bricks would melt out in a short time, not so much from the heat as from the fluxing agents introduced with the oil. A Riverside manufacturer finally perfected a process for making bricks that withstood the heat and resisted the temptation to turn into glass. That process is still in use. I have tarried on this development first because it shows how hard was the road of oil to the railroad fuel-box; second, because it is one of the many California claims to petroleum distinction.

With this hint of the background of California oil, we can now go into the concrete story of the fields and what they mean. There are three districts. What is known as the Valley Field—it gets its name from the San Joaquin—comprises Kern River, McKittrick, Midway-Sunset—the largest single area after the three flush areas in the south—Lost Hills-Belridge, Coalinga, Wheeler Ridge, and Elk Hills where Naval Reserve Number One is located. Then there is the Coast Field, which includes Watsonville, Santa Maria, Ventura, Newhall—the scene of the pioneer production—and Summerland where the wells rise out of the sea.

The really spectacular domain, however, is technically known as the Southern or Los Angeles Basin Field. Here the almost undreamed-of wealth of Santa Fé Springs, Signal Hill, and Huntington Beach poured forth. What most people do not know, perhaps, is that in this section are many older, and what are likely to be far more permanent, productions, such as exist at Whittier, not named after the poet but after a town, Fullertown,

Coyote, Montebello, Richfield, Compton, and Torrance, the latest of the California developments.

These last-named fields were producing before the three Klondikes of oil got into action and, as I have intimated, are likely to outlive them. It proves one of the fundamental facts in oil which is, that while the bonanza field, with its swift return and equally swift decline, provides the cake of the business, the old standby with its smaller but more durable production, is the real bread and butter.

I visited every one of these California fields, traveling by motor along the sea down through those early areas of output to Los Angeles, where you get the real kick out of any inspection of the California fields. The tangle of derricks at Santa Fé Springs is even surpassed by the forest of rigs at Signal Hill, which is really a part of the City of Long Beach, and where, as at Santa Fé Springs, the oil splashes the orange-laden trees. As I stood on Signal Hill I could see the whole United States fleet mobilized for war manœuvres. I realized that but for the treasure-trove of petroleum under my feet, that mighty Armada might lack some of its speed and efficiency.

From Los Angeles I went back to the north across the Tehachapai Mountains, pierced by an oil pipe line that was formerly one of the wonders of the business, into the Valley Field, the real backbone of California production, the capital of which is Bakersfield.

Here, for example, I saw the Wheeler Ridge field on the edge of the desert where roads had to be built far into the hills and every gallon of water hauled for ten miles. In such a site as this you begin to visualize the hazards and hardships of oil production even within the confines of civilization. An oil well is like a railroad siding in that it represents a sort of magic thing out of which spring

movement and community. The rough camp of today is often the living town of tomorrow. By the same token, today's feverish activity is often the desolation of a brief year, or less, hence. Oil, with its fickleness of yield, is the master maker and unmaker of life, fortune, and destiny.

In the Valley Field I passed the famous Lakeview gusher, the largest and most spectacular well California has yet produced, which at its high tide reached 68,000 barrels a day. It accounted for a total of 6,000,000 barrels, had the effect of forcing the price down to 30 cents a barrel, and is still producing about eight barrels a day, which is enough to pay for its operation. In the decline of this one-time mammoth you encompass the usual fate of the gusher.

No man could make such a trip without appreciating the scope and extent of the California oil industry, whose development up to date represents a total investment of $500,000,000, while $300,000,000 has been expended on facilities which include 4500 miles of pipe-line and sixty-five refineries. More than four hundred products are made from California crude. Seventy thousand people are employed, and there are 5000 additional employees of California companies in other Pacific Coast States.

Oil is the business of great and sudden transition. The almost acute shortage of one month may be followed by a violent overproduction of the next. Thus in California you today—1924—have storage for 90,000,000 barrels of crude. In 1923 half of this capacity would have sufficed, while in 1922 the oil in storage only approximated 32,000,000 barrels.

The irony of this huge storage, and it applies to all other oil fields as well, is that it is seldom used twice. It follows from the fact that the oil bonanza seldom if ever duplicates itself in the same area. The great pro-

duction of 1914–15 in California was in the San Joaquin Valley. At that time large reservoirs and tanks were erected. The San Joaquin flood subsided, the storage was emptied, and most of it has remained unoccupied ever since. Storage not only means the construction of tanks and earthern reservoirs but also the actual purchase of ground upon which they rest, because oil and its accompaniment usually damages or destroys the soil.

There are two kinds of storage—huge concrete-lined and roofed reservoirs and steel tankage. I saw the largest of these reservoirs which was built by the Standard at El Segundo. Its sea of 3,000,000 barrels of fuel oil was grim, black, almost terrifying. Steel tanks range in capacity from 35,000 barrels to a maximum of 175,000 barrels.

Oil is piped through pipe-lines to "field storage" and "tank farms" which are usually adjacent to the refineries. The Southern California output, which forms the bulk of the production, is now largely so-called high gravity oil and therefore of high volatility. The higher the Baumé gravity of crude, the greater its gasoline content. In order to prevent loss by evaporation, oil is generally put through the refining processes at once. The lighter products—gasoline and distillates—are removed and stored in steel tanks, where the evaporation is relatively small. The residuum of lesser volatility is sent to the reservoirs. It is necessary to build approximately one barrel of steel tankage for the light products to every two barrels of the heavier products. Steel storage cost is, of course, much more expensive than reservoir storage. One detail of oil transport in California is distinct in that the heavier grade, being very viscous—that is, sticky—must be heated in order to pass it through the conduits. This procedure is not necessary in the fields east of the Rocky Mountains.

But all this wealth of resource and facility does not guarantee oil. As I pointed out in the preceding chapter, and it is well worth emphasizing again, oil is not only the most fugitive and capricious of all minerals but, unlike an agricultural crop, it cannot be grown. California's good fortune is that, thanks to the immemorial upheavals and processes of Nature, she happens to overlie immense reservoirs of the most precious, perhaps, of all existing raw materials.

The story of the California oil fields of today is really the record of the big companies which dominate the situation. Each great organization has pioneered in one or more areas. The Standard of California, for example, not only opened up the Montebello Field in Los Angeles County, wrested Wheeler Ridge from aridity, got the initial commercial production in Elk Hills, but launched Huntington Beach. In the same way the Union Oil Company uncovered the rich crude in Richfield and later discovered the Santa Fé Spring domain. Signal Hill owes its amazing exploitation to the tenacity of the Shell Oil Company of California. The Pacific Oil Group, including the Associated, led the way in sections of its own particular domain, the San Joaquin Valley. Thus the impress of a specific corporation or a personality attaches to nearly every big producing section.

First among the California oil producers, both in wealth of resource and extent of output—it brings in more than one-fourth of the whole state supply—is the Standard of California. In the roster of the so-called Standard group it is surpassed in prestige only by the Standard of New Jersey and the Standard of New York.

Like most of the outstanding oil corporations of the United States, the Standard of California represents an evolution from obscure beginning to millioned might. The history of the company goes back to 1875 when D. G.

Scofield organized the California Star Oil Company, one of the first producing oil organizations of the state. It was the forbear of the present Standard of California.

Scofield deserves a high place among the oil pioneers of the West. At the age of nineteen he began as a prospector in the Pennsylvania fields. Like Lyman Stewart, he went to California poor in purse but rich with hope, and he made himself a factor in the situation. From the outset he believed in California's oil future and he lived to see the Commonwealth become a world factor in petroleum.

In the late seventies the California Star Oil Company was merged with the Pacific Coast Oil Company, which had been established in 1879 by McPherson and Felton and which operated in the Pico Canyon where California oil development began. In 1900 the Pacific Coast Oil Company was acquired by the old Standard Trust. Scofield became Vice-President.

In those days every Standard subsidiary was directed from 26 Broadway in New York. Most of the presidents of the subsidiary corporations were directors in the Standard of New Jersey and had their residence in New York. J. A. Moffett was the titular head of the Pacific Coast Oil Company which became the Standard of California in 1906. When the Standard Trust was dissolved in 1911, Scofield was made president and held that office until he died in 1917. The immense expansion of the Standard of California is partly due to his faith, vision, and foresight.

Upon his death the presidency was assumed by W. S. Rheem, who was cast in the same mold. It was Rheem who established the Standard refinery at Richmond on San Francisco Bay. What was once a village of 200 people is now a thriving community of 23,000 souls. Here you have one of the many instances of what oil can do for a locality. The rough camp becomes a hiv-

ing town almost overnight, while the scene of a huge refinery, such as the vast Standard plant at Richmond, becomes the nucleus of a large prosperity. What happened at Richmond was duplicated at El Segundo where another great Standard refinery is located.

Rheem held the presidency for only two years when a sudden attack of heart failure carried him off. His place was taken by K. R. Kingsbury, who has maintained every constructive tradition of the office. In him you have the exemplification of the highest ideals of American character and business.

In those distinctive features which peculiarly touch the oil consumer the Standard of California has been conspicuous as a pathfinder. Take the service station. Every motor-car owner, whether he drives his little flivver, or sits behind the chauffeur in a costly limousine, knows the value of the wayside establishment where he replenishes his fuel supply. This national institution owes its origin to the Standard of California, and in this wise.

The forerunner of the service station was the garage whose owner bought gasoline wholesale from the big company at a certain price with a discount, and then added what he pleased to the retail rate. The motorist, therefore, was at his mercy. A situation which aggravated this condition almost acutely existed in Seattle, where one of the large California companies tied up most of the garage owners with yearly contracts, with the result that the retailers of gasoline were charging prohibitive rates.

The Standard of California had the inspiration to sell direct to the consumer and opened its own retail establishment. This is generally accepted to be the origin of the thousands upon thousands of service stations which dot the whole United States and which provide one of the best aids to the man or woman who travels in motor cars.

It is curious that in an era where the "manufacturer to consumer" idea has become so common, this now indispensable manifestation of it was delayed so long.

Speaking of service stations reminds me that in no state perhaps are there quite so many as in California. Inside, and within walking distance of the big communities, especially in the south, you cannot throw a stone without striking one. The prestige of Los Angeles as an oil capital is only matched by her preëminence as prolific mother of service stations. At scores of intersections there is one on each corner. Competition has reached the point where the English language is strained to the utmost to meet the emergency. I saw one sign which read: "We sell he-gasoline here."

It is natural that Los Angeles should head the roster in service stations. Perhaps nowhere in the world, not even in Detroit, has there been such a phenomenal increase in the number of motor cars. From 8415 in 1913 there was an advance to 200,000 last year. This means that there is one automobile for every four persons. With a total registration of 1,093,660 automobiles and trucks throughout the state you have practically the same automotive average for the entire commonwealth.

To return to the Standard, let me indicate a second detail worthy of note. It lies in the fact that every one of its directors—and this list includes the highest in office importance—rose from the ranks. K. R. Kingsbury, one of the really constructive figures in American oil, is conspicuous in this respect. He has been successively stoker, pipe-line checker, timekeeper, gauger, foreman, salesman, vice-president, and finally chief at forty-three. His is a kindling story in self-made success. This achievement in oil has only been duplicated by Walter C. Teagle, who was made President of the Standard of New Jersey when he was thirty-nine.

A third innovation fostered by the Standard, and which has been adopted by all the other leading California companies, is in the improvement of working and living conditions. In a state where some of the oil fields are on the edge of a paradise of sunshine, fruit, and flowers, it is natural that such a reformation should exist. These happy hunting grounds for oil, so far as environment is concerned, are the exception and not the rule, but even in the desert and other isolated areas great changes have been made. They are an essential part of the story of California petroleum because the oil worker is, when all is said and done, the prop of the industry.

In the old days in California, as elsewhere, the oil camp was akin to the traditional mining camp after a big strike in that it was wild and often as unsanitary as it was unmoral. In the rush for wealth the primeval instinct asserts itself and man is brutal and unashamed. Oil is not an æsthetic article to work with. Moreover, oil production is unceasing once the well is brought in. The crude flows or is pumped every hour of the twenty-four. The machine must be geared up incessantly to a high pressure and the field is the scene of continuous activity. No other industry presents such a spectacle of eternal effort to garner the output.

It is only in comparatively recent years that there has been any thought of the comfort of the employees. Today the California camps have hospitals, dormitories, and recreation halls interspersed with gardens of flowers, fruit, and vegetables. But this is only one phase. Once the average employee had no interest in his company save what was contained in his pay envelope. Now an employee of one year's service is permitted to set aside up to 20 per cent of his pay each month for the purchase of stock.

In the case of the Standard, which has been a leader in welfare innovations, for each dollar so set aside the company adds the sum of fifty cents as a bonus to encourage thrift and to induce participation in the plan. The combined total is placed in the hands of trustees who purchase stock and hold it in the name of the employees. As the shares bear dividends they are credited to the workers' account and applied to future purchases as the plan progresses. During the first twenty-two months of the plan's operation the Standard employees saved $7,709,243. To this amount the company added $3,854,621, and dividends on purchased stock amounted to $441,513. Thus the employees accumulated $12,005,-377. It is not straining the point to say that these welfare and stock-buying features, as well as the profit-sharing which exists in the Union Oil Company, have contributed to the really unusual spirit which animates the personnel of California oil workers.

Where the narrative of the Standard of California is one of gradual growth in which teamwork has been a factor, the record of the Union Oil Company, one of the giants of the coast, is a dramatization of the long life and unceasing effort of Lyman Stewart, the "Grand Old Man" of western oil. In some respects he bears the same relation to production that the elder Rockefeller does to refining and transport. Like John D., he was noted for his piety. When fortune came to him he endowed many religious charities. It was said of Stewart that in the early days of Union Oil he opened stockholders' meetings with prayer. He invariably carried a Bible.

Stewart was nineteen when Colonel Drake brought in the first historic well in 1859. Curiously enough, he was born near Titusville, the cradle of the business. His father was a tanner who hoped that his boy would carry on the business. The lad refused because of the smell of

leather and went into oil in which there was slight, if any, improvement.

In Stewart's young manhood Pennsylvania was oil-mad. Oil leases were so much in demand that many, including Stewart, bought as little as a sixty-fourth interest in a single acre. He got his experience in the original field and in 1882 went to California, where because of his operations in various fields, and until his death in 1923, he was prominently identified with production.

It is with the Union Oil, however, that he registered his most notable performance. By combining three small companies he launched this concern in 1890. Typical of the vicissitudes of the oil industry is the fact that at one time the fate of this company, which also meant Stewart's whole future, depended upon a loan of $10,000 which was finally granted by I. W. Hellman, in his day the leading banker of Southern California.

Lyman Stewart personified the chronic optimism of the oil man. E. W. Clark, who is now executive head of the company, told me this story about him. At a time when oil was very scarce and high, Stewart gave orders that every possible contract for oil for the future delivery should be made. When the question of supply was raised he answered: "Never worry about that. We will get the oil." I relate this anecdote to show that Stewart, like every old-time producer, always felt that when you needed oil you could always find it.

One of Stewart's cardinal rules was summed up in this sentence: "Buy all the oil lands you can get, but never sell any." The result of this foresight was that the Union has never lacked available producing area. The Lakeview gusher was brought in on one of his properties.

That Stewart never played favorites even with members of his own family is indicated in the following

incident which I got from his son, W. L. Stewart, now President of Union Oil. It involved a certain underwriting for a subsidiary company. Young Stewart had told some of his friends about it and he assured them that he would get them in on it. He therefore submitted their requests for allotments with his own. When the allocations were made he found that he had been left out in the cold whereas his friends got what they wanted. He spoke to his father about it, whereupon the only reply he got was: "I thought you could manage your own affairs better."

Linked with the Union Oil is a California oil enterprise well worth dwelling on for a moment. It is the Independent Oil Producers' Agency, an illuminating example of coöperation in what is perhaps the most highly competitive productive field in the world. It was organized in November, 1904, by 150 oil-producing corporations or individuals operating in the San Joaquin Valley, and is the only organization of its kind in the oil business anywhere. The Union Oil Company, which is a member of the Agency, guaranteed the financing of the Producers' Transportation Company which built a pipe line from the San Joaquin Valley to tidewater. Prior to its operation the only other outlets for the crude from this area were the pipe lines of the Standard of California and the Associated Oil Company. The Producers' pipe line enabled the independents to have their own channel.

Under the plan of the Independent Oil Producers' Agency, of which the Union is the marketing agent, the oil is sold in the regular markets tributary to California, Chile, British Columbia, and the Hawaiian Islands under what is practically a pool arrangement in which all overhead costs are equally distributed. A commission of 10 per cent is paid to the Union for acting as marketing

agent and the best interests of everybody concerned are economically served. The Agency owes its inception, as well as its continued and useful existence to L. P. St. Clair, who has been president for sixteen years.

With the Union Oil Company we encounter for the first time the long arm of the Dutch-Shell coalition. This powerful British-Dutch group, as I have already related, is reaching out for an oil mastery of the world under the stewardship of Sir Henri Deterding. Nowhere in America has it expanded to such a point as in California. It has a huge and highly organized enterprise, the Shell Company of California, which is not only in keen trade competition with all the out-and-out American companies, but is likewise a distinct factor in every phase of the industry on the Coast. It was the Shell Company, for instance, that opened up the treasure-trove of Signal Hill.

The Shell link with Union Oil is interesting. Two years ago the Dutch-Shell interests bought the Union Oil Company of Delaware now dissolved. This latter company had a 27 per cent stock holding in the Union Oil Company of California and it therefore passed into the hands of the aliens.

The transfer disturbed the Union of California. The officials viewed with alarm the advent of Dutch-Shell, and as a result, and in order to maintain a purely California ownership, organized the Union Oil Associates in which a control of the parent company is now vested. Thus while the Dutch-Shell may increase its line of stock by open purchase, it cannot dominate the Company.

The Shell Company of California is part of the Shell Union Oil Corporation, one of the two concerns through which Dutch-Shell operate in the United States. Other members of the group are the Roxana Petroleum Corporation and the Ozark Pipeline. Deterding is president

of the Shell Union Corporation and the Dutch-Shell combine has a 72 per cent ownership in it. In the Shell of California, as in every other concern that flies the Dutch-Shell flag, Deterding is the court of last resort. From his office in London he dictates the policy and performance of the California section of his world-wide empire.

More picturesque in human interest than the story of Lyman Stewart is the narrative of Captain John Barneson, whose name is synonymous with the rise and expansion of the General Petroleum Corporation. In him you have the hardy sailor who left the perils of the deep for the no less perilous fortunes of oil production. The liquid that he employed to calm the troubled waters failed to function ashore, for a time at least, because his career in petroleum has been full of storm and stress.

Barneson was born in a fishing village in the north of Scotland. The son of a sea captain, he really went to sea when he was six weeks old because his mother usually accompanied her husband on his trips. At fourteen he became an apprentice on a 545-ton ship that carried immigrants to Australia. For some years he was in the Oriental trade. At twenty-three he became captain of a clipper which participated in many of the famous races of the tea ships from China to England. The first ones in port always got the highest prices for the cargo and there was keen rivalry.

Captain Barneson's sea life was full of adventure. Once at Tahiti when all his crew had deserted on the night before sailing, he rounded them up at the point of a pistol, put them in irons, and with his handful of officers put out to sea. On another occasion he defied a mutiny single-handed and brought the rebels to their knees. Knowing these incidents and others that I could relate, you can understand how and why he brought the General

Petroleum safely into harbor after the concern had narrowly escaped the rocks more than once.

In 1890 Barneson left the sea temporarily and became agent of a British shipping company at Seattle. When the Spanish-American War came along he went back to his old love as captain of the transport *Arizona*, and carried thousands of our troops to the Philippines. With the conclusion of peace with Spain he went ashore and there, so far as business is concerned, he has remained ever since.

It was in 1900 that Barneson became associated with oil and in historic fashion. Petroleum was being produced in quantities in California and he began to figure on the substitution of oil for coal as fuel at sea. The Santa Fé and Southern Pacific had proved the desirability of oil in railway locomotives. The captain therefore argued:

"Three and a half barrels of fuel oil can do the work of one ton of coal. You can buy oil from 30 to 60 cents a barrel while coal costs from $7 a ton. It is high time to make the change."

When he suggested the conversion to shipowners they regarded it as heresy. Finally he got the owner of the *Enterprise*—the ship did not belie its name in view of subsequent events with which she was associated—to change from coal to oil. Prejudice against the innovation was now reinforced by official precedent. The Treasury Department regulation stipulated that every ship should carry coal passers, but with oil fuel they were unnecessary. The *Enterprise* had to make three trips to Pearl Harbor with the officially designated number of coal passers, who had no coal to pass, before the regulation could be changed.

Captain Barneson early saw and urged the immense value of fuel to the American Navy. In this respect he

emulated the service of the late Lord Fisher, whose advocacy of oil for the British Grand Fleet led to an epoch-making transition, and really resulted in the British Government becoming a partner in the Anglo-Persian Oil Company in order to guarantee an adequate source of fuel both for war and peace.

Having sponsored, to a large extent, the momentous change from coal to oil, it was natural that Captain Barneson should become interested in oil production himself. His first association was with the Esperanza Oil Company. With his introduction into oil the captain began to do the daring thing. He helped to build the first important pipeline in California. It ran from the Coalinga Field one-hundred and ten miles to the sea at Monterey and it was the forerunner of the pipe line 170 miles long which he subsequently laid down across the Tehachapai Mountains, linking the Valley fields with San Pedro Harbor. When he first announced the latter project he was told that it was impossible.

The General Petroleum Company was the natural evolution from the original Esperanza concern to meet modern needs and competition. As I have intimated, there were times when its fate hung in the balance and when the retired sea captain practically had to go it alone. He persevered with the result that the General Petroleum today is one of the most important of the California group, and in almost all of the California fields as well as in Mexico and Wyoming. The bulk of its domain, however, is in the San Joaquin Valley.

When you ask Captain Barneson to tell of his oil associations he invariably says: "I am only a sailor." His office reflects his old environment for he learns the progress of time from a ship's bell, and an old chronometer that aided him on many voyages stands upon his desk. When I inquired how he had withstood the

vicissitudes of those years of General Petroleum travail, he made this interesting reply:

"Many years ago I asked Collis P. Huntington to name the trait that had been of most service to him in his lifetime. His answer was 'the ability to be patient.' It has been my standby ever since."

From Barneson to Captain William Matson, another of the romantic oil figures of California, is a natural step for various reasons. Each sprang from obscure seafaring folk abroad; each left a marine command to enter petroleum production, and each achieved a notable self-made success.

Matson was born in Sweden and became a cabin boy on a coaster before he was ten. At fourteen he worked his way across the Atlantic and arrived in New York with a few cents in his pocket. He shipped as sailor on a vessel going around the Horn and turned up at San Francisco, where he made his home until he died. His first employment on the Pacific Coast was as cook on a scow. Subsequently he became captain of a small sailing schooner plying the waters of San Francisco Bay and vicinity. When he was twenty-one he borrowed enough money to buy a 200-ton schooner with which he began a regular freight service between San Francisco and Hilo in the Hawaiians. This was the nucleus of the steamship line which now bears his name.

We now come to the link with Barneson. As his shipping interests grew, Matson acquired the *Enterprise*, his first steamer. Like the founder of the General Petroleum Corporation, he realized the value of oil for fuel at sea. It followed that when Barneson broached the idea to him, after having been turned down by various sceptical skippers, he found an ally in the Swedish shipowner. The conversion of the *Enterprise* into an oil burner followed, as I have already told, and a new era began on the Pacific. It is typical of Matson's enterprise

that he is said to have been the first to use the radio on a ship in those waters.

Having helped to foster fuel oil for ships it was inevitable that he should turn to oil production. He always said: "If you use fuel in large quantities you must control the source of it." His initial interest was in the Western Union Oil Company in the Santa Maria fields. Soon he was building pipe lines and tankers, and acquiring productive acreage on his own.

Having demonstrated the safety and economy of oil burning in the *Enterprise* he interested the Hawaiian sugar plantation owners in the use of fuel oil for their extensive irrigation pump requirements. With his small but growing fleet of tankers he carried the fuel to the Islands, where he pioneered a consumption which is now in excess of 2,000,000 barrels a year.

Following the organization of the Honolulu Consolidated Oil Company which merged all his growing oil interests, he entered the Midway field and continued in pioneering. As was the case on Wheeler Ridge, he wrested production from the desert. Water had to be piped for miles, frequently to high elevations, and it was necessary to develop a gas fuel supply. The enormous gas reservoirs and pressure in the Buena Vista hills, where he also operated, led Matson to pipe the gas to Los Angeles. In 1910 he began to experiment with the extraction of gasoline from wet gas and built the first plant in the San Joaquin Valley fields to actually obtain gasoline from gas, a process, by the way, with which few people who use "juice" every day are familiar. It is the source of a considerable supply of our gasoline.

Thus the penniless Swedish lad who landed in New York traveled far. A fleet of liners flies his name at the masthead, his name is linked with a significant advance not only in the use of oil but the refinement of it, and

among other monuments to his success is a seventeen-story skyscraper on Market Street in San Francisco.

In many respects the most militant character in the California oil drama is E. L. Doheny, who needed no Washington investigation to project him into the fierce light which so often beats about a virile and dominating personality. He had bucked adversity in camp and gulch for several decades before he tapped the liquid treasure that won him fame and fortune. Born of poor South-of-Ireland parents in Wisconsin, the story of his rise to wealth ranks with that of William Knox D'Arcy, patron saint of the Anglo-Persian Oil Company, and of Sir Henri Deterding, the master of Royal Dutch.

With Doheny's long quest for gold and silver through desert and canyon we are not concerned here. In the American mind he is linked with oil and it is to this phase of his life that we will direct ourselves.

The circumstances that attended his advent into petroleum are like a chapter out of fiction. When you follow the lives of prospectors—and if there ever was a chronic prospector he is embodied in Doheny—you discover that reverse and success follow in almost regular order. It was during one of the periodic depressions that Doheny found himself in Los Angeles in 1892. Out of a fortune of $100,000 which he had made in mining he had exactly $1000 left. He was thirty-six years old.

One day as he walked down the street he saw a wagon-load of brown dirt drawn up alongside the curb. The instinct of discovery was always strong in him so he took out a handful and found that it was tarry and greasy. Although he had never hunted for petroleum—in fact he had never seen a derrick—something indicated that this dirt had some connection with oil. He asked the negro driver where he had gotten his load and was told that it came from an excavation near one of the city parks.

Doheny hopped on a street car and went out to the place. Upon examining the ground formation he discovered tar exudes which, mixed with soil, were being used as a substitute for coal in a number of small Los Angeles manufacturing plants. Instinct told him that oil was near at hand. With his old comrade of many prospecting adventures, C. A. Canfield, he selected a spot about a mile from where he had found the tar exudes and began to dig a shaft with pick and shovel. When he became convinced that he was nearing oil he imported a driller from Pennsylvania and put down a well which came in with a flow of forty-five barrels a day.

This well, which was in the heart of Los Angeles, started the development in that section. In less than five years more than two hundred companies were organized and 2500 wells drilled within the municipal limits. Scores of houses had to be demolished in order to make way for the oil workers. It is estimated that 75,000,000 barrels of oil were obtained in Los Angeles. Some of these wells are still producing.

The significance of Doheny's achievement in Los Angeles was that it not only opened up the city field but led him into a conquest of petroleum not matched, perhaps, by any single American. From that first well in Los Angeles sprang the vast chain of interests that flies the Pan-American flag on land and sea. Indirectly, it inspired Doheny to develop the Mexican oil domain, the story of which has already been told.

No phase of California oil development is quite so rich in the romance of the unexpected as that which relates to the Southern Pacific Railroad. A huge grant of land from the government, bestowed years ago as a subsidy, part of which was sold to settlers for the proverbial song, suddenly became a petroleum domain of immense potentialities. Here, in a word, you have the outstanding fact

in the life of what is today one of the great coast companies, namely, Pacific Oil.

To get the beginning, so far as oil is concerned, we must go back to 1901 when the California production was approximately 9,000,000 barrels. The Kern River field was in the hands of a large number of small operators and it was the usual case of each for himself. Consequently there was no unity of action. Marketing, refining, and pipe-line facilities were poor. Fuel oil as a substitute for coal was still regarded with distrust. Those who accepted its efficiency doubted the permanency of the supply. A price war among operators brought oil down from $1 a barrel to 20 cents, while at the well it sometimes sold at 10 cents.

It was to meet this situation through organization that the Associated Oil Company was formed by W. S. Porter, sales manager for a Los Angeles oil-well supply house. With him were associated A. F. L. Bell who introduced California asphalt to the world, William Mulholland, discoverer of oil in Santa Barbara county, and Bernard Bienenfeld, consulting engineer of the Southern Pacific. Forty-five companies came into the concern, with the result that the industry was stabilized in the Kern River area. During the early years large holdings of oil land were acquired in the Coalinga, Lost Hills, Midway, and Santa Barbara County fields. Subsequently the producing areas were extended until they now include 100,000 acres of proved and prospective oil lands in California. The company also has intensive interests in Texas, Wyoming, Nebraska, and Kansas.

With coördination began a period of intensive expansion. It meant the acquisition of pipe lines to the seaboard and the purchase or construction of refineries. Two innovations marked the period. One was the formation of a supply company, the other the establishment of an

iron works for the manufacture of pumps, tanks, and other oil-field equipment. Meanwhile, various subsidiaries came into being.

Then came the link with the Southern Pacific. In 1909 the railroad, unconscious of the fact that it had a petroleum domain all its own and seeking to conserve an adequate supply of liquid fuel for its locomotives, steamers, and other activities, bought a controlling interest in the Associated. This need for fuel was not the sole oil interest of the Southern Pacific, however. This brings us to the romance to which I have alluded which is bound up in the larger railroad drama of the Far West.

Back in 1866 the United States Government granted rights to certain alternate sections of land in the San Joaquin Valley to the Southern Pacific under an Act of Congress "to aid in the construction of a railroad and telegraph line from the States of Missouri and Kansas to the Pacific Coast." In those days it was the custom of the government to encourage railroad construction with acreage gifts. A similar procedure was followed with the Union Pacific, which first spanned the plains with steel rails. The patents for the Southern Pacific territory were granted on the certificate of government surveyors that the lands were non-mineral. A similar affidavit was filed by the company.

Many years later, that is in 1905, when oil in commercial quantities was discovered on the Southern Pacific lands, suit was brought by the Federal Government to have the patents annulled. The allegation was that the Big Four—Huntington, Stanford, Hopkins, and Crocker—who built the great unified system which opened California to the world, had previous knowledge of the presence of oil on the property. After a long litigation it was proved to the satisfaction of the court that not only had the company no idea of the mineral values of its grant

lands but that it had sold much of what is now valuable oil acreage for farms at prices ranging from $2.50 to $4 an acre. It was also shown that when the Southern Pacific, seeking a supply of liquid fuel for its locomotives, engaged engineers to locate oil lands, it was on outside leases.

The discovery of oil on the Southern Pacific lands altered the fortunes of individuals as well as corporations. The story is told of a horsedealer who arrived at Bakersfield with $4000 in cash with which to purchase live stock. He was inveigled into a poker game and also indulged in strong drink. When he came to his senses about twenty-four hours later he found that he was minus his cash and that in the course of the game he had acquired a considerable amount of apparently worthless property in the San Joaquin Valley. His partners were furious with him for betraying their trust and he was expelled from the group. He got title to the land and a few years later sold it for more than $3,000,000. The supposed lemon turned out to be a melon for the tract was rich in oil.

Once in the possession of oil, the Southern Pacific developed and expanded its mineral properties, first through a department in its organization, and later with a subsidiary company. It extended its wells to the Buena Vista Hills and finally to Elk Hills. The organization expanded until a sixty-mile trip was required to visit all its active areas in one field.

In 1920 the railroad segregated all its oil interests in a new company, the Pacific Oil, which was turned over to the stockholders of the Southern Pacific Railroad. Paul Shoup, who had been elected president of the Associated Company in 1918, became head of the new organization. It took over all the grant lands of the Southern Pacific Railway and also retained the controlling interest in the Associated Oil Company which had been acquired

in 1909. The Associated remained a separate entity however.

One of the distinctive features of Pacific Oil is that it is solely a producing company. With 259,000 acres of land it has one of the great oil reserves of the United States. A large part of the area remains unexplored. The refining and marketing ends are carried out by the Associated Oil, to which, as I have indicated, it is closely allied.

The dominating personality of Pacific Oil is Paul Shoup. At fifty his career ranks as unusual even in steam transportation, where a brakeman sometimes becomes chief executive. He not only rose from a simple clerkship, by way of a telegraph operator's desk, to be the principal vice-president of the Southern Pacific but turned to oil and registered a corresponding success. When he was fourteen he worked his way through school, first by carrying a route for a Los Angeles newspaper and later acting as its correspondent at San Bernardino where he lived. His first full-time job was in the mechanical department of the Santa Fé railroad. He soon went to the Southern Pacific and, save for his presidency of the two oil companies, has been in railroading ever since.

A little-known episode in his early life shows the man's versatility. He showed facility as a writer and prepared much of the company literature. It ranged from a "Prune Primer" to glorification of winter resorts. One day he got an appropriation of $100 to boost patronage and incidentally California. The result was a house organ. For its first issue Shoup was editor, photographer, staff writer, and business manager. Today it is the *Sunset Magazine*, one of the best-known periodicals in the West.

The late E. H. Harriman picked Shoup as a "comer." The wizard of the Union Pacific had a vast traction dream for California and entrusted its consummation to Shoup,

who made possible Pacific Electric with its 1040 miles of track and therefore the most extensive interurban system in the world.

California oil has done more than roll up this imposing list of major companies with its gallery of strong personalities. The huge overproduction created an issue which is perhaps the livest in the business. It grows out of the intensive operations which made the record yield of the Los Angeles Basin possible, and is summed up in the question: "Was it waste or otherwise?"

On one hand you have the contention that, because of intensive drilling such as exists, for example, at Signal Hill —where wells are drilled on adjacent town-lots, some of which are not more than 120 feet square—there is costly duplication of effort and a demoralizing flood of oil, much of which must be disposed of outside its logical geographical market area. In support of this is the fact that during the fifteen months ending December 31, 1923, approximately 80,000,000 barrels of crude were shipped from California through the Panama Canal to Gulf, Atlantic, and European ports.

With sixty-four companies operating on 770 acres at Signal Hill, the investment is considerably more than $200,000,000. Everybody in the field worked madly to get out all the oil possible and prices slumped. It was cheaper for the Dutch East Indies refiners to buy the California crude and conserve their own. Less frenzied productive competition would have meant an expenditure of one-tenth the present outlay, a conservation of supply, and better prices. Of course, the gasoline consumer everywhere has temporarily benefited by this orgy of output. Unless new California bonanza fields are discovered, however, it is only a question of time when the Pacific Coast will pay dearly for the overproduction in the Los Angeles Basin.

On the other hand the argument advanced by certain California operators is that competitive drilling, because of the great gas pressure, leads to a larger recovery of oil than would have been the case if the wells had been widely spaced. The immense storage facilities are held up as evidence that there is no actual waste of the product. Furthermore this storage is regarded by the defenders of the overproduction as a market stabilizer against abrupt shortage. Here you have both sides of a question which is purely academic.

One more conspicuous fact in California oil production remains to be pointed out. Not only are the wells deeper than in any other part of the world, but also more expensive. This applies to both the dry hole and the producer. During the past two years the Standard drilled six dry holes representing a total cost of $1,483,000. I disclose this fact to show that when the glib promoter of oil stock solicits your money "for development" you can have some idea of the resource necessary to successful production, as well as the hazard. If a great company with all its geological information and its technical experts can drop this sum in six wells, what chance has the piker organization? Of course one big producer will practically offset such a loss as I have indicated, but the promotion company lacks the sinews with which to persist.

Whether overproduction is waste or conservation, the black flood of 1923 placed California in the premier place among producers. Although the peak of output has been passed, it is not likely that she will be dislodged soon. Her recent oil history is a typical American drama of immense effort and result.

CHAPTER VII

OKLAHOMA THE HUB

When you examine the various American oil fields you find that each has a distinct individuality. In the preceding chapter, for example, you saw how the vast California overproduction resulted from a frenzied competitive drilling amid a paradise of sunshine, fruit, and flowers. Turn to Oklahoma and you have an atmosphere distinct and different. Instead of the forests of derricks such as clutter the town-lots at Signal Hill you have, in the main, orderly battalions of rigs which indicate a certain degree of stabilization of output.

This is merely one of many outstanding features in the appraisal of Oklahoma and through Oklahoma the Mid-Continent field. It means that in our journey throughout the oil domain we have reached a section rich with petroleum history and output. Where California stands alone as a producing unit, the Mid-Continent area includes three, that is, Kansas, Oklahoma and Northern Texas. The former Indian Territory, a full-fledged State since 1907, outranks the other members of the group in prestige and production, and it is upon her that we will concentrate. Oil helped to make statehood possible.

No oil region is more tinged with romance than Oklahoma. In the Glenn and Cushing fields she witnessed rushes with an attendant picturesqueness that almost vied with Spindletop in her palmiest day. In California and Texas various populous communities have sprung from new oil fields, but it remained for Oklahoma petroleum to endow a city with its largess. Tulsa's phenomenal development, from Indian trading-post into a metropolis

of 100,000 people practically within a decade, is almost entirely due to the production of the contiguous country. In addition she has become the hub of the American oil world.

More picturesque is the evolution of the Oklahoma Indian from dependency to plutocracy. The Osages have exchanged the blanket for the bank-roll in what is perhaps the most amazing incident in the story of the American red man. With growing cash assets of more than $150,000,000 from leases and royalties, with their empire of oil only partially developed, and with annual incomes that most white families would be glad to claim, these wards of the government are full-fledged petrolecrats.

There are many who believe that Oklahoma has the largest petroleum potentiality of any American state. On geological estimates, she contains more than 14 per cent of the oil reserve of the nation. She has already produced, with last year's yield of 165,000,000 barrels, a total of a billion and a half barrels of crude, which is one-seventh of the amount produced by the entire world to date. Because of the extent of the oil-bearing formations, exploration is probably more extensive and intensive than in any other region of equal area, and the number of individuals and corporations engaged in wildcatting is correspondingly large.

Even the most superficial analysis of the Mid-Continent field affords an illuminating example of the fickleness of petroleum yield. A few years ago it was regarded as the greatest producing area in the United States, and as recently as 1922 Oklahoma ranked first among the oil commonwealths, having held the premiership with one exception for eight years. In 1923 she was displaced by California. In 1925 she may again have the blue ribbon. Thus the laurel of oil supremacy may make the wearer almost as uneasy as the proverbial royal crown.

Before we go into the specific story of Oklahoma it may be well to dispose of two preliminaries that have important bearing on the Mid-Continent field. The first is a brief examination of the oil status of Wyoming. Geographically, the State is listed as a separate unit like California, but for purposes of popular explanation it is really a part of the central American production area and must be linked with it.

Oil was being produced in a small way in Wyoming the year after Grant surrendered at Appomattox but it was not until the late eighties that organized development began. By a peculiar coincidence the first well is said to have been dug by a man named Graft. Perhaps he put the curse on the subsequent petroleum development of the State, because Teapot Dome lies within its confines. This much-discussed section is really a part of the Salt Creek field, the largest in the State and one of the most extensive of all known oil structures. Its high explosive qualities, so to speak, have never been exceeded anywhere in the mineral field.

The Teapot Dome episode is not the first time that Wyoming oil has figured in a government tangle. In the old days, both in California and Wyoming, the oil prospector located on government land in the same way that the gold-seeker did. Once the mineral was found, a claim could be staked out and possession assumed. With gold this was easy because discovery often followed hot upon initial work. It takes from three to five months sometimes to bring in oil, and in consequence there was claim-jumping, especially in California, before the original locator brought in petroleum.

This was bad enough, but in 1909 practically all the government lands were withdrawn, as the phrase went, from private development. Many prospectors and operators who had spent months in work on claims, suddenly

TULSA THIRTY YEARS AGO

Photo by Hoefler-Shuler Photo Company

STREET IN TULSA TODAY

found themselves dispossessed. There is no need of going into the technical story of all this complicated litigation. It harassed the courts of two States for years. The point to be made here is that the withdrawal of Wyoming oil lands did two things. One was the establishment of the Naval Reserve, the other was the delay in the larger petroleum development of the State for some time. Once exploitation began, no time was lost. In 1916 Wyoming was tenth among the American oil states, while in 1923 she was fourth.

The second preliminary deals with Kansas which, as I have pointed out, is a part of the Mid-Continent trilogy. Once upon a time she was looked upon as the best bet among our oil producers. In 1918 the State stood third in the list with a production of 45,451,000 barrels, whereas in 1923 she had dropped to sixth place with barely half.

Prior to 1904 more oil was produced in Kansas than in Oklahoma. The year 1904 will always stand out as a significant one in the march of American petroleum events since it marked the beginning of the era when the amount of oil produced west of the Mississippi exceeded the output of the Eastern field. The East never came back. From 1904, and until California wrested leadership last year, the Mid-Continent area was the determining factor in our production.

It was in Kansas that the vast Mid-Continent field first took definite form. To the Sunflower State came the operators who subsequently opened up Oklahoma, North Texas, North Louisiana and Arkansas. They were no slouches at empire development.

Kansas, and later on Oklahoma, achieved another piece of pioneering. Until the Mid-West fields began to flow in quantity, the process of refining was a mysterious act to the average operator. He put his oil into the

pipe line and it was finished business so far as he was concerned. With the opening of the Mid-Continent section various large producers went into refining, and what might be called the era of independent refining began.

We can now resume the Oklahoma narrative. The State's oil supremacy has been due to a succession of huge pools whose discovery was not accidental, as was often the case elsewhere, but because of persistent wildcatting. Moreover, they were opened up principally by individuals, which is the reverse of California where initial development was carried on by large corporations.

The first of the reservoirs was the famous Glenn Pool. It not only put Oklahoma on the oil map but gave Tulsa a boost and also accelerated the movement for statehood. In 1906, when the Glenn field really got under way, Oklahoma was still a territory but the following year she joined the sisterhood of states.

Associated with the high tide of Glenn Pool were all the sensational features that have so often followed the launching of a big oil area. The field was prospected in 1905 by Galbreath and Chesley, independent operators who made their first tests in the eastern part of what is now the Glenn Pool, about fifteen miles south of Tulsa and where a small well was brought in. Mystery surrounded the performance. The test well was closely guarded and no one except those directly interested was allowed to approach and make an examination.

The discovery well was on a piece of ground owned by Ida E. Glenn, and from her the field took its title. This was an unusual procedure because most American oil fields are designated by the name of the nearest town.

With the advent of 1906 Glenn Pool got under way. Thousands of acres were quickly discovered to be productive; people rushed like mad to what was believed to

be a bonanza, and such it proved to be. The cost of operation was comparatively cheap, labor was abundant, and a frenzied era began. It was not at all unusual for a spectator, viewing the field from the center, to see as many as six big wells flowing simultaneously. Oil went down to thirty cents a barrel. The care now bestowed on the product when a big well is brought in was unknown. The greasy fluid literally flowed all over the field and costly fires were daily occurrences. The low price of the product did not justify steel tank constructions and it was run into earthen reservoirs.

Keifer, a flag station on the 'Frisco railroad, was the point where all the field machinery was consigned. In those days an oil strike attracted the soldier of fortune and the town soon became the wildest of the Southwest. Human life was almost as cheap as the oil that gushed from the ground. Traversing the area was a small creek upon which rested a thick covering of crude. The bottom was mud of unknown depth. It became a gruesome receptacle because it was the resting place of the many individuals who disappeared from the scene of operations daily. Not even Spindletop in Texas, where there was a kindred unholy rush, wrote such a mottled story of crime and excess as was recorded in the early days of Glenn Pool.

The output of oil greatly exceeded the output of crime and debauchery. In 1906 the gross production was 5,000,000 barrels, and in the following year it reached 36,000,000, which was the peak. Henceforth the decline was steady, so that now it is scarcely 10,000 barrels a day. Such is the fate of every big field.

Glenn Pool not only enriched many an individual who entered the field on a shoestring but made possible one of the wonder stories of American oil. It concerns Robert McFarlin, a small-town Oklahoma banker, and

James A. Chapman, a cattleman. They acquired their initial lease in Glenn Pool for $700, which is said to be the only actual cash that they ever put into the oil business. After establishing themselves as modest producers on the first lease they organized the McMan Oil Company, utilizing the first syllable of one name and the last of another to form the corporation title. McFarlin and Chapman were good traders and were endowed with vision and courage. They increased their Glenn holdings out of receipts from oil sales, and when Cushing and Healdton fields in Oklahoma, and subsequently Augusta in Kansas came in, they became important factors in all these areas. The golden touch was theirs.

The most remarkable, and the culminating feature of their career, was the sale in 1917 of all their properties —they included a pipe-line, tank farms with 2,000,000 barrels of oil, and undeveloped leases aggregating 80,000 acres—to the Magnolia Petroleum Company, one of the Standard group, for $35,000,000. Practically all of this sum was paid with Magnolia stock which immediately after rose considerably in value. Such was the dividend on the original $700 invested in a small Glenn Pool lease. The romance of oil probably contains no more extraordinary evolution of a small sum into princely proportions.

Glenn Pool was merely the prelude to Cushing field. Here was a spectacular development that focused the eye of the world on Oklahoma. It is one of the most remarkable chapters in the story of American oil.

In the spring of 1912, C. B. Shaffer was wildcatting in Creek County, almost in the geographical center of the State. In what came to be known as Wheeler sand—it got its name from the owner of the farm upon which the work was being done—he brought in a well which was the forerunner of the treasure of Cushing. Extensive

exploitation of Cushing did not begin until the following year, when ten-thousand-barrel-a-day wells were no uncommon occurrences, with a 15,000-barrel gusher as an occasional diversion.

This matter of Wheeler sand requires no explanation. Petroleum is found in sands, as I explained in a previous chapter. These sands vary in different fields. Among oil men some fields are almost better known by their sands than by their official name. One of the richest of the Oklahoma strata is Bartlesville sand. North Texas has its Woodbine sand in the Powell and Mexia fields. In some areas there are half a dozen different kinds of oil sand. At Tonkawa you can see four wells closely spaced, each one having tapped a different kind of sand which contains oil at different depths.

Once Cushing field got under way, a drilling campaign of a character never before witnessed in the Mid-Continent region began. The roads, which were ribbons of mud during the wet season and beds of dust when dry, were alive every hour of the twenty-four with endless caravans of material. Thirty-four hundred producing wells reveal only part of the hectic tale of activity, for there were also many dry holes.

Representatives of the major companies and a host of independents swarmed in. Fortune played her usual pranks. The impoverished farmer of one week was rich the next from lease money and the prospect of huge royalties. Cushing, the nearest railroad point which gave the field its name, had the usual magic transformation, although here was more law and order than prevailed at Keifer. The paraphrased rule might well have been, "Eat, drill, and be merry, for tomorrow the field may be dry." Drill and drink were also synonymous.

Output soared. From 8,250,000 barrels in 1913 there was an expansion to 27,500,000 barrels in 1915 when the

peak was reached with an average daily production of 315,000 barrels. This was a record until Powell in Texas and Signal Hill in California took the palm.

Haste always makes waste. Pipe line construction utterly failed to keep pace with the frantic drilling. No adequate market existed for so vast a flood of high gravity crude. High gravity oil means oil with a large gasoline content. At that time the automobile had only begun to come into its own, and the gasoline demand was small as compared with today. What was to be done with this tidal wave of petroleum? The character of the soil, as well as the quality of the oil, prohibited the use of earthen storage except as an emergency measure and to afford temporary relief. The unprecedented situation demanded a key and this key was storage. Approximately 53,000,000 barrels of steel tankage capacity had to be constructed to handle the flood tide.

The history of Cushing is the same narrative of rise and fall as that of every other one-time producing section. That daily average of 315,000 barrels is but a memory. At the time I write the original domain, together with all the adjacent pools, produces only 29,000 barrels a day, and this is steadily declining. It is only when you examine the fate of such pools as Glenn and Cushing that you begin to appreciate the uncertainty of the oil business, and understand why there must be such an incessant hunt for new areas. Again you realize that uncertainty is the mother of production.

Cushing field brought fortune to many people but to none with the same degree of picturesqueness as to Jackson Barnett. In him you encounter the first of the Oklahoma Redskin millionaires.

Jackson Barnett is a full-blood Creek Indian and is now in his seventy-third year. He received an allotment of 160 acres of land in the Creek Nation reservation which

comprises a large part of Creek County, Oklahoma. Much of this land is rough and stony, and the surface is of value only for grazing purposes. The Cushing Pool is in the heart of it.

After the discovery well in Cushing was completed, there was a scramble for leases, and in the natural course of things Barnett's acreage was sought. Technically he is what is known as incompetent. An incompetent Indian is one who is either mentally or morally incapable of administering his affairs. In such cases—and there are many in Oklahoma where the Indians have such valuable land properties—a white guardian is appointed by the same court which judges him incompetent.

In Barnett's instance incompetency was more than a technical appellation. In 1912 he scarcely knew a word of English, was illiterate, and absolutely ignorant of business matters. His wants were simple and he spent his life hunting, fishing, or tramping the countryside. His home was a rude cabin in a clearing in the woods. The one delicacy that he indulged in was a daily bowl of chile con carne.

When the competition for Cushing leases started, Barnett's allotment naturally figured in the running. Since he was unable to do business himself, a guardian of both his person and his property was named. This guardian immediately sold an oil and gas lease upon Barnett's holding for a cash bonus of $4600, reserving for the lessor the usual royalty of one-eighth on the oil and gas produced. This lease had to be approved by the Secretary of the Interior.

Barnett's farm—it was really only a farm in name—proved to be the most prolific tract in the whole Cushing field and has produced more than 8,000,000 barrels of crude oil in addition to a vast volume of natural gas. In bonus and royalties the Indian's estate—for so it is

officially designated although he is still alive—has been enriched so far by more than $2,000,000.

To the average person, regardless of color, such a swift influx of wealth would have turned the head and led to an orgy of spending. Not so with Barnett. With a fortune standing to his name, he found it impossible to spend more than his customary fifty dollars a month. All that he required to satisfy his wants was the old cabin in which he lived, a gun, a pipe, and a pony. His guardian was in despair to find some means of spending the income. One day he bought Barnett an automobile. It was spurned and the millionaire Indian rode off on his pony and spent the night in the woods. He was then tempted with a fine riding horse but this also failed to appeal to him. He clung to his mustang.

What the male sex failed to accomplish with Barnett was achieved by the female. Two years ago he married a white woman who was able to increase his scale of expenditure somewhat. From her he has also learned a little English. The Barnetts now live at Beverly Hills, a suburb of Los Angeles. Despite the widening of his social horizon he still regards chile con carne as the last word in food. The major part of Barnett's fortune is held in trust for him by the Department of the Interior which has invested it principally in Liberty Bonds.

This reference to Beverly Hills reminds me of a story about some rich Oklahoma Creek Indians who moved to Hollywood to try to spend the royalties from their oil lands. They rented a furnished house in one of the best quarters of the community. The owner was the possessor of a blanket collection and had assembled them from all over the world. Some hung on the walls and covered the couches.

One day he went to take a look at his house. To his surprise he found that most of the blankets had been

removed from where they hung or lay, and were rolled up in the corners. He also observed that none of the beds seemed to have been slept in. Upon investigation he learned that the Indians, true to instinct, had reposed on the floor with the landlord's fine blankets rolled around and under them.

For every Creek made super-prosperous by petroleum there are scores of Osages. In consequence they are the richest group of people per capita in the world. Just as the Cushing Pool was located on a section of the Creek allotment so does the Burbank field flow with wealth on part of the Osage reservation. We now come to the real high spot, so far as human interest is concerned, in the Oklahoma oil drama.

Fully to understand this extraordinary turn in the tide of Osage affairs you must first get the background. The story of Oklahoma is essentially the story of the last stand of the North American Indian. What is now the State of Oklahoma was formerly Oklahoma and Indian territories. Here the red man was segregated behind what was believed to be his final frontier. At the outbreak of our Civil War, Indian Territory and part of Oklahoma were owned exclusively by the so-called Five Civilized Tribes who were the Cherokees, Creeks, Chickasaws, Choctaws, and Seminoles. Like many of their bronze brothers they had trekked from the Far South to find a hunting ground west of the Mississippi.

The Osage tribe, while less numerous and affluent, also had its Odyssey. Once it roamed Alabama and later settled in Kansas. These nomads were destined to still another change, this time to what is now a part of the State of Oklahoma. The reason for the transfer, which eventually proved to be the ill wind which blew gilded good, was that the Federal Government wanted the Osage lands in Kansas for the white farmer. It there-

fore purchased 1,500,000 acres in the then Oklahoma Territory from the Cherokees for about 70 cents an acre. The area became the Osage reservation and is now Osage County. The proceeds of the sale, aggregating $1,099,-137.41, were the nest-egg, as it were, out of which the present Osage millions have developed.

Formerly all the Osage lands were held in common by the tribe. In 1907 under authority of Congress, a census, or what is more technically known as a tribal roll, was taken. The tribal lands were then subdivided and allotted among the members, each receiving 657 acres, or practically four quarter sections. This allotment carried title to the surface alone. The oil, gas, and other mineral interests in the land were reserved for the tribe until 1946, when the acreage can be sold outright without reservations. At the present time there are 2229 Osages, the remnants of a once powerful line. However there is no need to indulge in any sentimental emotions over their "plight." What man overlooked in his custodianship of them, Nature supplied.

For four years prior to the establishment of the tribal roll, oil and gas had been discovered in small quantities on the Osage holdings. The belief began to grow that here might be the scene of a big mineral development some day. It was one of the factors that dictated the tribal roll which enabled the Indians to share jointly in the proceeds. When the roll was made every Osage, and this included all the men, women, and children alive at midnight on December 31, 1906, secured a head-right which enabled him or her to have an interest in the tribe's bank roll. A head-right is the technical unit of division of the lands and moneys of the tribe.

By this time the Osages had some inkling that their land was valuable. They were therefore eager to have as many head-rights in the family as possible. Expectant

mothers hoped that the expected would happen before the census flag fell. One boy who was born at 11.50 o'clock on the last night of 1906 was called "Johnny-on-the-spot." A luckless girl baby who came into the world half an hour after midnight was dubbed "Mary-too-late." Yet some people contend that the American Indian has no sense of humor.

There is such a wealth of fascinating detail in the romance of Osage wealth that it is difficult to know where to begin to tap it. Even the first lease, executed in 1896, had its element of drama. This was the so-called Foster lease upon the whole reservation and was in favor of Edward B. Foster of New York. In view of the many millions paid more recently for leases on small parcels, it is interesting to know that the Foster arrangement called for royalties of $50 annually for each gas well and one-tenth of the oil produced. Equally striking is the fact that because of the inaccessibility of the Osage reservation, due to the lack of highways, railroads, and bridges, it was almost impossible to induce oil operators to go into the field. The output was therefore inconsiderable compared with the present yield. Despite the handicaps the Osages received $2,734,985.98 in royalties from oil and gas between 1903 and 1912.

One by-product of the Foster lease will serve to show how fortune early played its pranks on the Osage oil lands. The original Foster lease and all its interests were concentrated in 1902 in the Indian Territory Illuminating Oil Company which executed a sublease upon a certain section of land in favor of Fred T. Boston. In oil history this place is known as the Boston Farm. Four years later Boston, for a consideration of $2500, transferred his sublease to the Gypsy Oil Company, the Oklahoma branch of the Gulf. The Gypsy organization at once began to drill wells and obtained a good production. When the

Foster lease expired in 1916, the Gypsy interest automatically ended with it.

Now for the striking phase. With the enhancement of the value of the Osage lands, due to the increasing output of oil, the Federal Government decided to sell the leases by auction and this plan has been adhered to ever since. The Boston lease went under the hammer and the Gypsy Company, having the preference right to purchase renewal for the highest bid made by any other competitor, bought it by planking down a bonus of $1,178,955. Yet this same lease fetched exactly $2500 in 1904.

The milepost that marks the beginning of Osage enrichment was set up with the discovery of the Burbank field which is now the greatest of the Oklahoma producing areas. The element of chance, always present in the search for petroleum, asserted itself here. Large pools in Oklahoma have had a way of showing up in unexpected places, which means that they arrive in the face of every logical prediction to the contrary. Burbank developed in a portion of Osage county that was regarded with such little seriousness as an oil domain that the first leases brought less than $10 an acre. Within the last eighteen months they have been leased for $10,000 an acre, which only pays for the right to drill. Once more you have the contrast that marks the petroleum business.

In May, 1920, E. W. Marland, one of the most persistent and successful of American wildcatters, who had turned from a fledgling law practice to oil production at twenty-one, bought a lease near the town of Burbank in the western section of Osage County for $2000. With his first test well he uncovered the Burbank pool which since that time has produced 64,000,000 barrels of oil. It reached the peak in July of 1923 when it averaged 118,000 barrels a day.

This output could have been considerably increased

but for a "gentleman's agreement" entered into by all the operators in the field to cease drilling because of the overproduction in California and Texas. This agreement is the only one ever made between American oil operators to curtail production in an entire field, and was possible because the government, as custodian of the Osage Indians who pool their interests, did not compel the operators to drill. In ordinary circumstances, and because wells drain one another, ever lessor wants his property developed as quickly as possible. Hence the rush production in so many fields. Moreover any understanding between operators to limit drilling through mutual agreement might be a violation of the anti-trust and anti-conspiracy laws. With the government as an interested party the Burbank compact could be made.

The opening up of Burbank began an intensive development of the whole adjacent area. As always happens when a new field comes in, there was a rush for leases. At such times what is known as the "lease-hound" has his inning. He is the individual who either scents the presence of oil, or gets an inside tip about prospective production and then mobilizes options on lands. Instead of dealing with the sometimes unsophisticated farmer, the operator must negotiate with him and it is an expensive performance. A "lease-hound" has been known to get a lease from a farmer for $100 and sell it to the operator for $10,000.

The government wisely decided to sterilize the operations of the lease-hounds. Hence the auction sale of all the Osage oil rights. These auctions take place at stated intervals—there is always an extensive advertisement of them in advance—at Pawhuska, the county seat of Osage County and also the seat of the Osage Tribe. In summer they are held in the open air under what is known as "The-Million-Dollar-Tree," and during the winter months

in the council room of the Osage Tribe in the Agency Building.

The Osage leases have attained the highest prices yet recorded in oil development. Prior to 1920 they fetched ordinary sums which were as low as $800 for a quarter section. The moment Burbank began to boom the bonuses soared. In June, 1921, fourteen leases brought $3,256,000, whi'e at the December sale in the same year eighteen realized $6,258,000. With 1922 came the first seven-figure prices. One lease went for $1,335,000 and another for $1,160,000. The June, 1922, auction represented a total of $10,504,000. It was then that the Gypsy Oil Company paid $1,600,000 for a quarter section. This was surpassed in 1924 when the Cosden Oil & Gas Company paid $1,955,000 for a similar lease. Between November, 1918, and April, 1923, the Osage leases rolled up $37,614,000. Today the total is $51,099.000.

This huge sum, however, represents only a part of the Osage increment. In addition to the immense prices paid as bonuses for the right to drill, the Indians get a royalty, and a special one at that. On all leases that produce less than 100 barrels a day the royalty is one-sixth or 16⅔ per cent of the gross product. Where the wells yield better than 100 barrels a day the return is one-fifth or 20 per cent. The ordinary royalty is one-eighth of the oil.

Analyze the Osage returns and you readily see why the red man and the red car are almost synonymous at Pawhuska. Up to the time I write, the Osages have received in bonuses for oil and gas leases alone the sum of $84,005,424.26. For rentals of various kinds the return has been $731,313.24. In oil royalties up to January first of this year there had been netted a tidy $56,044,849.28, of which nearly $12,000,000 represented the 1923 dividend. On natural gas the Osage bank roll has been increased by $6,337,235. From all sources the Osages have garnered

a total of approximately $150,000,000. Since only part of the oil formations on the reservation have been developed, and further because the limits of the productive area of the Burbank field have not been defined, there is likely to be a steady increase over a considerable period of time.

At this point the question naturally arises: What disposition is made of all this money? Except the graduates of Carlisle and similar institutions, the average Indian is not equipped to handle or conserve a considerable sum. You have already seen what happened in the case of Jackson Barnett. The Osages, however, so far as I was able to discover, have no Barnetts. Given the opportunity they are the finest little spenders in the world. Hence Uncle Sam devised a plan to keep a check on extravagance as far as possible.

The Indians, of course, merely receive the income on their millions. In 1923 it averaged approximately $12,000 a head. Only in cases where the beneficiary is 100 per cent competent, that is, able to look after his own affairs with some degree of intelligence, was the full amount bestowed. The incompetents, such as I have already described, receive $1000 every quarter, and this is usually handled by their guardians. Moreover, when a technically competent Indian begins to slather his thousands around he is usually taken in hand by the agent and a curb is put on his desires.

A large number of the Osages are competent, which means that the men have from $12,000 to $40,000 a year to spend. Some are not without a thrift sense. Tom Blackbird, for example, built a $50,000 house at Pawhuska and got a Kansas City firm to decorate and furnish it. Peter Kenworthy erected a $75,000 bank building at the county seat and receives a good-sized annual rental in addition to his head-rights. A third, Charles Wah-

hre-the, has saved nearly $100,000 and has it on deposit in a Pawhuska bank.

On the other hand, scores of Osages have acquired all the spendthrift habits of the palefaces. They are constant y in debt and daily importune the agent at Pawhuska for advances on their income. Like many of the white race they regard the Volstead Act as still another crime against the noble red man, with the result that the bootlegger thrives in Osage county. It is a case of red liquor for the red man, and it comes high.

The Queen of the Osages, both in personal attractiveness and in the extent of her bank roll, is Mary Elkins. She is a full-blooded member of the tribe and recently passed her twenty-second birthday. In the gilded gallery of Indian fortune she is the star exhibit.

Mary Elkins was alive on that memorable January 1, 1907, when the tribal roll of the Osages was prepared by the Department of the Interior. By reason of her enrollment, four quarter-sections of land—640 acres—were allotted to her. Through the death of her parents and certain sisters and brothers she has inherited the equivalent of seven and one-half head-rights. These, combined with her own head-right, make her the possessor of eight and one-half head-rights in the tribe. It means that she owns 5440 acres of Osage lands, and all of it is in the oil-bearing territory.

Although of legal age Mary Elkins, being a girl, is technically incompetent in the eyes of the law, and therefore incapable of transacting her own business. She has a guardian to whom all funds accruing to her are paid. Her annual income varies from year to year because the head-rights depend upon the earnings for the oil land. During 1923 she got as her share $103,000, an annual income not to be despised. She also has a growing principal which is nearing the million-dollar mark. A

portion of the funds in her guardian's possession is paid directly to Mary Elkins for maintenance. The remainder is invested in government securities.

Mary Elkins has received a fair education. She has been a student successively at the Haskell Institute at Lawrence, Kansas, and at a well-known college for girls in Pasadena, California. She has been twice married, in each instance to white men. With her second husband she now resides at Colorado Springs, Colorado. Notwithstanding her marriage she is still known, personally and in business, as Mary Elkins.

Some of the original Osage women have intermarried into the best families of Oklahoma. The wife of a leading citizen of Tulsa was a full-blood Osage. She and her children have the highest social position. The son of one of these mixed marriages is perhaps the best-known amateur golfer in the state, besides being a success in his business.

There is, unhappily, the other side of the picture. The Osage money-tree has attracted the fortune hunter. More than one designing white man has landed a meal-ticket for life by becoming the husband of one of these Indian heiresses. The government is powerless to prevent such performances and can only put a check on expenditures. In the same way, white women with the aid of conscienceless lawyers annex the Indian male with one or more head-rights. Before long his wrongs begin.

I went to Pawhuska to see these Indian plutocrats at close range, motoring up from Tulsa through the Burbank field, the source of much of the Indian wealth. I had scarcely entered the town-limits when I saw a big black limousine driven by a white chauffeur with four Indians as passengers. The red father wore a red blanket draped over a hand-me-down suit, while topping his mane

of coal black hair was an old army hat. Puffing at a long, fat cigar he looked the picture of ease and contentment. His squaw wore a conventional dress but she also had a blanket thrown around her instead of a cloak. The two daughters were real "vamps." Their dusky cheeks were rouged; their hair was admirably coiffured; their frocks might have come out of a first-class shop, and as they alighted at the Indian Agency I saw they had on silk stockings and neat patent leather shoes. This ensemble is no uncommon sight at Tulsa.

I called on the Indian Agent at his office. Parked in front of the big building were a score of touring cars and limousines and all but one were owned by Indians. I venture to say that more expensive automobiles have been sold in Pawhuska than almost any other town of its size in the United States. The red man has made this quota possible. Curiously enough he seems to take a peculiar delight in having a white chauffeur although a considerable number drive their own machines.

The temptation is strong to linger on this Indian episode which is so unique in the annals of oil. The limitations of space press, however, and I must round out the chapter. It is doubtful if the aborigines of any other country have ever had such a windfall as these descendants of the first Americans.

As you continue the story of Oklahoma oil you discover everywhere manifestations of the distinctive individuality of the State in its relation to national production. Curtailment of output in 1923, which I have already indicated, is one feature, while conservancy, soon to be explained, is another. Even the fields have their marked characteristics. In Burbank there is no town-lot drilling. In many respects it is the most orderly field in the country. The Osage lease requires that only sixteen wells be put down to a quarter-section, which

means one well to every ten acres. This uniform development is less conducive to waste than hectic drilling.

Turn to the Tonkawa field, another of the major producers, and you find a different situation in many respects. Here you have the so-called big acreage, that is, acreage where there are no small parcels for development. This is common to most Oklahoma fields. At Tonkawa there are unique details. It produces more high gravity crude than any other Mid-Continent section. The outstanding trait of the formation is the multiplicity of productive sands which are technically called horizons. Because of the variety of oil sands it is sometimes necessary to put down four wells to a single location in order to tap each one of the horizons.

Like Burbank, the Tonkawa field owes its discovery to E. W. Marland. The first well was drilled on a school-land lease jointly owned by the Marland and Cosden interests. This brings us to another interesting feature of Oklahoma oil. Petroleum has not only filled the redskin purse but has greatly added to the school funds.

When Oklahoma was opened to settlement, four of the thirty-six sections of land in each township were reserved for state school lands. By 1912 oil development in the State had progressed to the point where the State School Land Department wished to exploit its holdings. Bids were sought for development in various districts. Marland's proposition to drill twenty test wells in consideration for the leases was accepted. The discovery well at Tonkawa was one of these test wells

Instead of being one pool, as was the case at Glenn, Tonkawa is virtually a series of oil reservoirs, each underlying the other. The field is five miles from the town of Tonkawa, which derives its name from the Tonkawa Indian tribe whose allotments are in the vicinity. During 1923 the peak of production was reached with an

output of 108,000 barrels a day. At present it averages about 40,000 barrels daily. Although this does not compare with some of the existing bonanza fields, it is well to remember that the oil is of exceptionally high quality for refining purposes.

While the expansion at Tonkawa has been free from the now familiar romance of a rush and all the coincident excitement—it has proceeded with mechanical and efficient precision—you have the usual spectacle of the farmer who eked out a bare livelihood through arduous tilling, made rich overnight by oil discovery on his land. Income from royalties have already totalled many millions. The Laura Endicott farm has netted the owner $1,000,000. The largest well on this lease has earned nearly $200,000 in oil royalties alone.

The royalty on the Tonkawa leases is the usual one-eighth. In many instances this royalty has been split up into small units and purchased by investors. The royalty under the John W. See farm establishes a precedent in minute parcelling. It is so divided that some of the individual holdings amount to one three hundred and seven-eighths of the one-eighth originally held by the lessor. Reducing this to product, it means approximately one barrel out of the 3024 produced each day.

Despite the serenity of development at Tonkawa, the field has not escaped the element of the unusual, as this story will show. In the town of Tonkawa a church and a cemetery are located on a two-acre tract. An enterprising citizen acquired a lease on it from the church trustees and proceeded to begin work for a well. The excavation under the derrick, in oil parlance, is called a cellar. This had been dug and the timbers for the rig piled up alongside. Machinery had begun to arrive.

One night a group of angry farmers, armed with pitchforks and clubs, drove away the workers. They

were all members of the church and many had been enriched by the oil development. They objected to what they termed a desecration of the churchyard and burial ground. Armed guards were placed around the tombstones to prevent the resumption of operations. The lessor took his case to court and the decision went against him. Thus the integrity of God's acre was maintained which, by the way, has not been the case in other oil fields. Oil production is seldom a respecter of persons or property.

Burbank and Tonkawa are the stars of the Northern Oklahoma field. Then there is the east-central domain known as the Okmulgee District, one of the most active in the State, and where there is a close coöperation among producers fostered by the Okmulgee District Oil and Gas Association.

The southern section is not only vying with the north in output but in at least one field—Healdton—makes a strong bid for the prize in romantic interest. In 1907 when Oklahoma territory and Indian territory were merged into the state of Oklahoma, Roy M. Johnson, a young linotype operator, moved to Ardmore from Beaumont and established a Republican newspaper. Several years previously he had dropped his few hundred dollars of savings in a defunct Texas oil venture. His journalistic instinct was heightened by a desire to retrieve his vanished wad. This was because Oklahoma was beginning to loom as an oil El Dorado.

Not only was the salvage from oil dubious, but the community wondered at the temerity of an individual who would try to run a Republican paper in a stronghold almost so unanimously Democratic as to be called "The Little Confederacy." However, he persisted through floods, crop-failures, and panics, and the journal maintained a precarious existence. The young man not only wrote all of it but set up most of the type.

Johnson befriended a broken-down veteran of the Civil War whose only bed was a pile of papers in the newspaper office. The old captain was an inveterate oil prospector. Night after night, after he had received his daily stipend of twenty-five cents from his benefactor, he regaled him with accounts of what he believed to be a rich oil field in Carter County.

Finally Johnson agreed to go with him and inspect the territory which was in a red-bed region. They spent the night in the open around the campfire and the next morning visited some water-wells which the farmers had great difficulty in using on account of the large amount of oil that continually rose to the surface. The newspaper man was convinced that here was a petroleum field.

Now began a campaign extending over three years to raise enough money with which to purchase leases. It was difficult to keep the project secret and the editor met with many jeers and jibes because of his unfaltering faith in the scheme. This was because no one believed in the oil possibilities of the area. John D. Archbold of the Standard Oil Company had declared that he would drink all the petroleum ever found in the red-bed country.

In 1913, after years of struggle to keep his paper and himself alive and the even more difficult ordeal of financing his dream, Johnson gathered in enough leases to make a showing. After many rebuffs, he persuaded a British oil exploration company to put down a well. Oil was struck at 1400 feet, which was a considerable depth for that time. Thus began Healdton, which led to a big development in Southern Oklahoma. The Hewitt, Fox, Graham, Brock, West Duncan, Velma, Milroy, Loco, and Walters fields followed.

It is an interesting commentary on the sceptism first felt about this area that practically all the oil fields in

Photo by Love

THE OSAGE COUNCIL WHICH DIRECTS THE RICHEST OF ALL GROUPS OF AMERICAN INDIANS

Southern Oklahoma today have been located along the trend first pointed out to the young journalist by the old captain. Another fact is that the larger exploitation of Healdton was mainly made possible by local people instead of old-established operators, as happened in many of the sections being developed at that time. This was because the persistent Johnson eventually sold so many of his townsmen on his proposition. Nearly every citizen of Ardmore participated directly or indirectly in the wealth that gushed in the field.

The Oklahoma oil narrative bristles with distinctive features. The State, for example, has the only woman oil operator in the country. She is Mrs. Charles Murray, who has her own company and who has drilled fifteen wells in the Bristow field, all of them producers.

The Southern Oklahoma field led to a striking reform —or rather readjustment of conditions—in the oil business. When Healdton and other fields began to flow in quantity, the Magnolia Petroleum Company laid a pipe line into the section and were the only purchasers. As production grew and some of the subsequent wells showed a lower quantity of oil, a cheaper price for the South was established. The buyer, of course, sets the price in oil. Naturally this worked a hardship with the Ardmore operators.

It was not until 1915 that their real troubles began. It was unfortunate for them that Cushing with its 300,000 barrels a day, and Healdton doing 80,000 barrels daily, should have reached the climax in production at the same time. This overproduction, together with the loss of European markets at the beginning of the World War, sent the Healdton price down to 30 cents a barrel. Only about 6 per cent of the potential production was being run through the pipe lines. To add to their troubles some of the major companies in Healdton began to drill and

they had to offset their efforts. In the face of these conditions the operators found themselves up against it hard.

To meet this situation the Ardmore Oil Producers' Association was started with Wirt Franklin as head. Oil men from other portions of the State, and especially Frank M. Breene, a well-known Tulsa independent operator, joined in what now became a significant movement. Largely at the instigation of these combined producers, the Oklahoma Legislature passed a law empowering the State Corporation Commission to establish a stewardship of some phases of the industry.

The first step was the enactment of the Yeager-Strain Act, named after the legislators who proposed it, requiring pipe lines or purchasers of oil from a common field to buy *pro rata* in equal proportions from all properties when only a portion of the produce is being purchased. This prevented a pipe-line company from running all of its own production, and refusing to run the oil from an independent neighbor who had no outlet for his petroleum. The Act also made every pipe-line company engaged in the business of purchasing crude oil a common purchaser as well as a common carrier, applying the same *pro rata* rule as in transportation.

This pipe-line legislation was the forerunner of a large part of the oil conservation laws now on the Oklahoma statute books. There are two sets.

The first group seeks to prevent wasteful production of oil and gas. Waste is defined to include, in addition to its usual meaning, the escape of natural gas into the open air, the intentionally drowning with water of a gas-sand or stratum, underground waste causing a gas well to burn needlessly, and wasteful utilization of gas. To forbid such performances the law prescribes a variety of rules applicable to the physical operation of wells and the marketing of their product. The Oklahoma Corporation

Commission has jurisdiction to enforce the statutes. There are regulations for the metering of gas, the plugging up of wells, the use of mud fluid to seal off sands, and forbidding gas pipe lines to take more than 25 per cent of the daily flow.

These regulations are similar to those prescribed by the Interior Department of the United States to govern the operations of oil and gas wells upon Indian lands, and lands owned by the United States, all of which are enforced by the Bureau of Mines. They are clearly within the police powers of the State, and have been judicially sustained. They had their inception in the frequent practice of zealous operators in many cases to disregard gas sands in their search for the more valuable oil. They do not have as their object the restriction of drilling, and give no power to the Corporation Commission to prevent so-called competitive and indiscriminate drilling during demoralization of the markets.

The Crude Oil Conservation Act, passed in 1913, goes farther than mere policing and really is an attempt to to regulate the market price of the raw product. It construes "economic waste" as the production of oil at a time when there is no market demand for it equivalent to its actual value. "Actual value" is held to be the average value at retail of the by-products of oil when refined, less cost, and a reasonable profit for production, transportation, refining, and marketing.

Such is the varied and colorful pageant of Oklahoma petroleum. Behind it is the immense potentiality of the rest of the Mid-Continent field. Within that vast mineral domain may repose the backbone of our future oil supply.

CHAPTER VIII

THE TEXAS DOMAIN

One morning early in January, 1901, a mound on the coastal plain of Texas, not far from Beaumont, exploded with a bang, well-nigh shattering a derrick and releasing a geyser of petroleum that gushed 200 feet in the air. For ten days the oil flowed unchecked, inundating the entire adjacent area. That mound was the site of the first well on Spindletop, and the roar of its release, like that historic Revolutionary shot at Lexington, was heard round the world.

Spindletop, or rather "Swindletop" as it came to be known because of the orgy of speculation that it inspired, represented the beginning of what was, in many respects, the most significant era in American petroleum since Drake's first well near Titusville. It annexed Texas, today a vast producing empire, to the oil map. Like that Pennsylvania cradle of the industry, it was likewise the school out of which a new line of potential figures emerged. It led to the organization of the two most powerful independent companies now in operation. It put the American people into oil stock in a big way for the first time. It witnessed the practical introduction of the rotary drill which has helped to revolutionize operation. It pioneered what is known as the Coastal field which, with its flood of heavy petroleum, helped to open the fuel-oil epoch.

No other American oil section can present such an imposing array of distinctions. This is why Texas, with her multiplicity of fields, many of them shot through with real romance—for the cattle kings became oil barons—is the basis of a whole chapter of this book.

As Texas struck her oil stride and became a national producing factor there was an interesting repetition of history. The madness of speculation that brought thousands to ruin at Spindletop was duplicated twenty years later with the opening up of Ranger and Burkburnett. There was this difference, however. At Spindletop the get-rich-quick artists escaped with the swag while in Northern Texas the Doctor Cooks went to jail. Thus, while the human instinct to gamble in undesirable oil securities remains unabated, there has at least been an advance in the laws penalizing promoters.

In the extent of her production Texas could easily be a separate unit like California. Geographically, however, she is allied with other domains. Northern Texas is part of the Mid-Continent area while South Texas is in the so-called Coastal field. Forth Worth is the business capital and Wichita Falls the production center of the North, and Houston the mainspring of the South. For the purposes of this chapter the State will be considered as a single oil entity.

Just as the consideration of Oklahoma had to include a brief summary of Wyoming and Kansas, so must this appraisal of Texas incorporate, in passing, some estimate of the two sections that cannot be overlooked in an examination of American production. They are Louisiana and Arkansas. The former has no outstanding features and ranked seventh last year among the producing states.

Arkansas is another and more lurid tale. One of the most recent of American fields—she only began to figure as a producer in 1921—she stood fifth in the roster of petroleum commonwealths in 1923.

The story of Arkansas oil is almost as replete with spectacular details as that of Spindletop. The first field —El Dorado—began in 1922 with a record gas well that blew up, caught on fire, and then formed a succession of

craters which engulfed a negro cemetery. This gas well attracted a horde of oil operators, and production was soon under way. During the same year the widely known Smackover area came into being. Even with the first well it had a distinctive detail because it was on the extreme edge of the productive section, which is unusual.

In addition to oil, Smackover oozes two other things—human interest and mud. In inaccessibility and difficulty of working conditions it is probably unsurpassed in any other existing American field. It is located in a more or less barren and scantily populated district, with limited railroad facilities and practically no roads. The workers had to live in shacks. In the early days heavy rains fell almost continuously and hundreds of horses and mules were drowned transporting material. The strike attracted much of the riff-raff that often flocks to a new oil area and the wild life that rioted at the opening of Glenn Pool in Oklahoma was duplicated. At the peak of production in 1923 the field reached 100,000 barrels a day. The total for the year was 35,600,000 barrels.

Like Ranger and Burkburnett, Smackover became a paradise for the stock promoters. The development of the field came at a psychological moment for it followed upon their activities in Northern Texas. The spectacular behavior of some of the flowing wells gave them a strong selling point. Some of the promoters even advertised stock in "guaranteed gushers." As usual, very few of these promotion companies actually produced oil of any consequence. Summed up, Arkansas is an important but uncertain oil area and must be reckoned with any appraisal of our future supply.

We can now turn to Texas for the real task at hand. Although a little heavy oil was drawn from a hand-dug well near Nacogdoches as early as 1866, the oil industry of the state really began in 1895 at Corsicana, whose

citizens, finding traces of oil in the city water-wells, began to drill for petroleum. The first well was put down in the center of the town and produced two-and-a-half barrels a day. Such was the beginning of a development now embracing fifty-three fields—located in three huge belts —and which produced 128,415,000 barrels of oil last year, placing Texas third in the list of our oil purveyors.

The development at Corsicana was historic in more ways than one. Indirectly it led, many years later, to the discovery of the great Powell field located a bare nine miles away. As I have already pointed out, those Corsicana operators literally walked over the riches of Powell without knowing that they were treading on a treasure-trove. They missed it because geology as an aid to oil-finding was not developed as it is today.

In a human way Corsicana contributed vitally to the expansion of Texas oil because to the city there came in the middle nineties two men destined to loom large in the oil drama of the State. They were J. S. Cullinan and the late Walter B. Sharp.

Cullinan had been bred in the original Pennsylvania oil nursery. Big, vigorous, and forceful, he began as a tank builder and soon made himself a power in oil. Sharp was a native of Tennessee. Before reaching twenty he had gone into the drilling of artesian wells. The step to oil was natural. Although he died at the age of forty-two, he had vividly impressed an uncanny oil vision upon the whole commonwealth. It was Cullinan and Sharp who, with the financial aid of John W. Gates, launched the Texas Company. At Corsicana, Cullinan and Sharp got the practical experience which was to help make Spindletop the gateway to Texas oil.

Corsicana was the prelude to Spindletop. The story of this spectacular event is one of the most familiar traditions in our petroleum annals. Yet it has picturesqueness

of interest and an element of romance which constantly renew themselves. What the Klondike, Cripple Creek, and Virginia City are to the narrative of mining, so is Spindletop to oil. Bret Harte might have found in it another Nevada.

There is a wide belief that Spindletop was brought in by Captain A. F. Lucas, with the famous gusher that bears his name. This is true, but it is not generally known that the first well drilled on the area was the work of Walter Sharp. In 1893 Sharp, who was then a drilling contractor, started a well near the base of Spindletop mound. The failure of his principals to supply him with the necessary fuel, water, and casing, combined with terrific wind and rain storms which prevailed, led to the abandonment of the project at 418 feet.

Prior to this time a certain Pattilio Higgins who lived at Beaumont had been a crank on the oil possibilities of the region and organized companies for the exploitation of what later proved to be Spindletop field. He really found Spindletop. As so frequently happens in similar cases, others reaped the harvest. When the region was dripping with wealth his principal asset was a lawsuit.

This reminds me of a perennial phase of the oil business, which is litigation. One of the constantly quoted maxims of the industry is "You spud in (that is, begin a well) at the surface and sue at the oil sands." Another is "A dry hole clears a title and a well clouds it." It means, in a word, that an oil strike often means the sudden discovery by a great many people that they have an interest in it. So it was with Higgins who really was the original Spindletop man.

The Spindletop area had, of course, been known to oil men for years, through salt domes which figure in the formation of the Coastal fields. These salt domes mean the presence of oil. They are very elusive and therefore

very costly. To find the Martin Dome near St. Martinsville, Louisiana, which is in the Coastal belt, 675 wildcat wells had to be drilled at a cost of $20,000,000. According to the percentage of commercially productive fields to salt dome areas, this would represent an expenditure of $60,000,000 to find one productive Coastal field.

Moreover most of the Coastal oil is lacking in gasoline content. Its value is due to the low cold-test lubricants that are obtained by refining it. It was the discovery of this particular kind of petroleum that gave the automobile lubrication end of the business its first big impetus.

Among the many who had faith in the Spindletop region was Captain A. F. Lucas. An Austrian by birth, he changed his name from Luchich when he became an American citizen in the eighties. Previous to his arrival in America he had graduated as engineer at the Polytechnic Institute at Graz, and also served as midshipman in the Austrian Navy. His first employment in this country was as mining engineer in a salt-mine in Louisiana. This led him to an investigation of the sulphur and oil possibilities of the Coastal plain and in time he turned up at Spindletop, where the dome formation and the exudation of sulphuretted hydrogen gas confirmed his belief that here was a region worth tapping.

Lucas leased a section of land in what later came to be the heart of Spindletop and began to work with a rotary drilling outfit. The use of the word rotary requires an explanation. Originally the American oil wells were drilled exclusively—and many still are—with what is known as standard cable tools. The hole was drilled by pounding down steadily. The rotary process of drilling consists of a fish-tail bit placed on the end of a string of drill pipe, the bit turning with the pipe to make the hole. Deep drilling is possible by either of these methods and in some cases a combination of both is used. Much of the

recent California production has been obtained by deep rotary drilling.

Lucas, and Sharp before him, saw that the rotary bit was the key to deep and difficult production. Lucas had to work with more or less primitive rotary tools and his well collapsed when he reached quicksand. He installed a heavier rotary outfit and started all over again. It is not necessary to go into the details of the man's long and baffling struggle. He ran out of money and it was only by surrendering a considerable portion of his interest that he persuaded J. M. Guffey, the Pittsburgh oil operator, also destined for a conspicuous part in the Spindletop drama and subsequent happenings, to see him through.

On January 10, 1901, the Lucas gusher, as it is always known, came in with a torrent of oil that flooded the adjacent countryside. Nothing like it had ever been seen before in oil production. It ran wild for ten days and more than a million barrels of the crude were wasted before the flow could be controlled.

The Lucas gusher, as such, occupies merely what might be called a freak place in oil history. It was really a stunt and yielded comparatively little money. What concerns us is the sensational development of the field itself as it marked the real beginning of big Texas production, and the chain of events, some of far-reaching significance, that followed thick and fast.

Spindletop inoculated the American system with oil. The papers boomed with the news of the first gusher and thousands, including operators, speculators, and soldiers of fortune, flocked to the field. The mechanic left his tools, the barber his shop, and the clerk his counter to join the rush. A quartette of brothers doing a vaudeville act in a Beaumont theatre abruptly closed their season, and on a borrowed stake formed a company that brought in a well. The magnate of today was the bankrupt of

tomorrow. Fortune was never more fickle than in that congested corner of Texas.

Derricks sprang up like magic. At one time there were five hundred on one hundred and-forty acres of land. Beaumont, which had been a peaceful little cattle, lumber, and rice town, became a mining camp that seethed with excitement. People slept on billiard tables. There was an overproduction of oil that brought the price down to three cents a barrel, and an equal overproduction of vice and debauchery that sent morality to a lower level. Drink and death went hand in hand. Out in the field saloons were established between the derricks, often using the rig timbers as part of their structure.

The madness to get production was only exceeded by a similar insanity on the part of the people to get rich quickly in the new El Dorado. Endless promotion companies were started and excursions were run to Beaumont from New York, Philadelphia, St. Louis, Galveston, New Orleans, and elsewhere. One of these train-loads of expectant millionaires arrived at Beaumont wearing badges inscribed "All is well at Beaumont." Those who had wells turned them on to gush for the benefit of the visitors and in this way millions of barrels went to waste. It was a prodigal period.

All the tumult and shouting of this frenzied era subsided and Spindletop became a normal producing field which at high tide—in 1902—produced approximately 18,000,000 barrels. Today the output is negligible.

I went there in January, 1924. A few wells were being pumped from a central power station but they were a melancholy spectacle. A spot which once hummed with activity and held the eye, interest, and some of the bankroll of the nation, was a forlorn and well-nigh desolate stretch, cluttered up with the wreckage of other days. Only the strong smell of petroleum remained unimpaired.

What were the consequences of Spindletop? First of all the field mobilized a group of men who made Texas oil history. They included not only Cullinan and Sharp, but also W. S. Farish, R. L. Blaffer, John Markham, Jr., Edward Simms, Underwood Nazro, F. A. Leovy, Walter Fondren, R. S. Sterling, and Howard R. Hughes. Each one of these individuals, and I have only listed a few, became conspicuously identified in oil production in a big way as you will now see.

It is a striking fact that the four major companies of Texas—the Gulf, Texas, Humble and Magnolia, some of them with international ramifications—all had their inception at Spindletop. We will begin with the Gulf. The institution which is controlled by what is perhaps the ablest, certainly one of the most powerful financial families of the United States, namely the Mellons, developed almost by accident. The Mellon association with it at the outset was almost unwilling.

You may recall that in his efforts to drill what came to be the discovery well at Spindletop, Captain Lucas had to enlist the financial aid of J. M. Guffey, who was associated with J. H. Galey. The firm of Guffey & Galey was one of the most important in the early history of American oil. Guffey, in particular, was a picturesque character who figured conspicuously in national politics and who had been in Pennsylvania petroleum almost from the start of the industry. He represents the cornerstone of the whole far-flung Gulf structure. It came about in this wise.

In order to operate at Spindletop, Guffey organized the J. M. Guffey Petroleum Company, which was the real angel of Captain Lucas. Production at Spindletop at the outset was more or less haphazard. The wells poured forth a mighty flood and much of it went to waste. Storage as we now know it was almost unknown. Even

had the oil been of high gasoline content it would have lacked a market for this purpose because the automobile was in its infancy. Fuel oil was just coming into use. In order to introduce it, the producers had first to install plants, and then educate manufacturers in consumption. This was an expensive procedure. With oil ranging from three to ten cents a barrel the operation was not highly profitable. The largest employment of oil as fuel so far had been in the locomotives of the Santa Fé and Southern Pacific railroads.

It naturally came about that before long the J. M. Guffey Petroleum Company needed financing. Having come from Pittsburgh, Guffey knew the Mellons and they undertook to underwrite a bond issue for the company. The Mellons had been financially concerned with oil from the early days and W. L. Mellon, in particular, had served an apprenticeship in the fields, and later with the Crescent Pipe Line. The second natural consequence was that when the Guffey Company got into difficulties the Mellons had to take over the concern. Thus without seeking it the family became sponsors for what has become, under their management, one of the outstanding oil corporations of the country with a rare record for conservative and successful management.

Once the Mellons sat in the seat of power the Guffey organization underwent a series of evolutions during the next few years. First came the Gulf Oil Corporation which remains the parent company. W. L. Mellon is president. Until he became Secretary of the Treasury, Andrew W. Mellon was vice-president but he relinquished all his corporate connections when he entered the Cabinet. The executive vice-president today is George S. O. Davison, who was one of the best-known and most capable mechanical engineers in Pennsylvania before he entered oil. F. A. Leovy, who was an obscure

railroad clerk at Spindletop, is head of the ramified production.

As the Southern and Central fields expanded came the Gulf Refining Company of Louisiana, the Gulf Pipeline Company, which owns the pipe lines in Oklahoma to Port Arthur where the company's largest refinery is located, the Gulf Production Company, and the Gypsy Oil Company which is the Oklahoma subsidiary. There are also subsidiary companies for operations in South America, Venezuela, Mexico, and elsewhere.

One of the little-known episodes of Texas oil history is that C. H. Markham, now president of the Illinois Central Railway, and one of our foremost transportation figures, was associated with the Guffey Petroleum Company and was later inherited by the Mellons who made him the first president of the Gulf Refining Company and also of the Gulf Pipeline Company. He had been connected with the Southern Pacific Railway and his knowledge of oil as fuel was useful in marketing the Texas product. In 1911, however, he returned to his first love and has been in railroading ever since. The Markham oil field in Texas is named after him.

One feature in connection with the Gulf is worth pointing out because it affects the crux of the whole industry, which is production. The keynote policy of the company has been to secure insurance against shortage. It has production in more fields than probably any other concern. This ensures an equitable distribution of supply. In 1923 the total Gulf output in American fields alone was 40,542,473 barrels, or one-eighteenth of the total production of the whole United States. It means that in oil, as with investment generally, it is unwise to put all your eggs in one basket.

The Texas Company sprang from the tenacity of Cullinan and the vision of Sharp. As soon as the Lucas gusher

let loose they were on the scene at Spindletop. Here they began the intimate association which meant so much for the future of the industry. Less than three months after the dream of Lucas was realized they formed the Texas Fuel Company with a capital of $50,000. It was chartered to do a general oil and pipe line business in the state of Texas. The first step was to make a deal with the Hogg-Swayne Syndicate (Hogg was afterward Governor of the State), which had a good production on Spindletop Heights. The second was to secure a pipe-line from Beaumont to Port Arthur. This infant concern was the nucleus of the present Texas Company with its world-wide interests. That original $50,000 capitalization has been increased more than three-thousand fold.

Cullinan and Sharp were not the type to permit others to do their producing. They therefore formed the Producers' Oil Company whose sole purpose was to get oil out of the ground. Thus by the end of 1901 they had two separate and distinct activities. Their first-born transported oil, and the second produced it. I emphasize the difference between the functions of these companies because it leads to the unusual corporate stewardship then exercised by the state of Texas. In it you can see why the way of the big corporation, both railroad and oil, has been so hard within its confines.

At that time there was on the statute books of Texas the authority to organize only two kinds of oil companies. One was a company authorized to produce oil only. It is an interesting commentary on the then attitude toward petroleum that in the statute a company was authorized "to prospect for, develop, and use coal and other minerals, *and* petroleum." The italics are mine. What is today the most precious of minerals was regarded merely as an incidental.

The second type of company that could be authorized

was for the purpose of storing, transporting, and selling oil and gas. Furthermore the law decreed that it was for operation solely within Texas. Putting it in another way, a company incorporated under the first statute was limited to produce the crude, while one that came into being under the second could only store, transport, buy, or sell. In a word, no one company could perform all the functions necessary for a complete operation in petroleum from well to consumer, or even refiner. This is one reason why the expansion of what was often an out-and-out Texas enterprise began outside the State.

As a producing field Spindletop was never a vital factor save in that it led to the larger state oil development. Cullinan and Sharp began to look about for new fields. It was not until the so-called Sour Lake area, located eighteen miles west of Beaumont, was opened, that these two men, and with them the Texas Company, were really launched as factors in production. It was Cullinan who showed the way.

At this point another figure enters the Texas oil narrative. He was silent but impressive. A few years prior to the opening of Spindletop, John W. Gates became interested in Port Arthur, which is about thirty miles from Beaumont. It was founded by Arthur E. Stillwell who named it after himself.

Stillwell was the promoter and first president of the Kansas City Southern Railway which he built from Kansas City to the Gulf of Mexico. He believed that Sabine Pass and its adjacent waters would be the ideal deep-water terminus for his road. In those days the deep water of the Gulf did not extend inland more than two or three miles to the town of Sabine Pass. Stillwell was unable to get desirable property at Sabine so he decided to start a new city of his own on Sabine Lake, which is the Port Arthur of today. Since he could not take his town to

deep water, he reversed the ancient legend regarding Mahomet and the mountain, and brought deep water to the town by means of the channel known as Sabine Pass.

Gates had an estate on Lake Sabine and spent considerable time there. He naturally became interested in the development of the new town so near at hand. Cullinan and Sharp needed money so Cullinan interested Gates in the Producers' Oil Company, and subsequently in the Texas Company which, upon its organization in 1902, took over the Texas Fuel Company. Many people have wondered why the word oil does not appear in the name of this big organization. It was because Cullinan at the outset wanted to make it strictly a Texas enterprise.

Gates knew that if a new oil field were discovered in the vicinity of Port Arthur it would boom the town. Such has proved to be the case because Port Arthur today is the capital of the greatest oil-refining district in the world. Where Tulsa represents a prosperity and an expansion due seventy-five per cent to oil, with Port Arthur it is a matter of one hundred per cent.

With Gates as an ally, Cullinan and Sharp now proceeded to develop new areas. The first objective was Sour Lake Springs, a well-known Texas health resort. The mud and water there were impregnated with sulphur and had certain admirable curative qualities. Sulphur indicated the presence of petroleum and Sharp's nose for oil—it did not belie his name—soon found it.

The upshot of the matter was that the trio got an option on a considerable part of the health resort property. The prospective purchasers were to have the right to drill a specified number of test-wells before making the principal payment. To Sharp was entrusted the task of drilling the first well which was near the hotel. As soon as he knew that he had struck oil he shut in the hole until the night of a terrific rainstorm when he opened it up and

found that he had a 10,000-barrel proposition. He then shut down the well again. He chose the rainy night because the water washed away all evidences of the oil.

There were two reasons for this mystery and caution. One was, of course, that the ultimate purchase price would be affected. The other and more timely was that, due to the falling off of production at Spindletop, fuel oil had risen in price from ten cents a barrel to eighty-five cents. Sharp knew that once the Sour Lake discovery became known, the price would go down again. The Texas Company interests had wells at Spindletop and they wanted to get everything possible out of them. As a matter of fact when Sour Lake did let loose with something of a rush, fuel oil dropped to fifteen cents a barrel. Fortunately the public had been educated somewhat in the use of fuel oil and there was a bigger market than in the early days of Spindletop.

The Cullinan-Sharp-Gates group, which in reality was the Texas Company, now exercised their option at Sour Lake. It meant the purchase of 900 acres in this section for $900,000, which was a record price even then. The second big producing field now came into being in Texas. The Sour Lake field not only identified the Texas Company with production in an important way, but formed the basis of the growth which makes it one of the forces in American petroleum today.

Sour Lake gave the Texas Company its start. The company not only drilled the first and succeeding wells in this area, but was active in all succeeding petroleum developments in the State. Having become a producer it turned to transport. Next came the organization of the Texas Pipeline Company, and later on, the Texas Pipeline Company of Oklahoma. Today the company has production in nearly every important field in Texas, the Mid-Continent area, Louisiana, and also in Mexico.

Its refinery at Port Arthur, one of seven similar plants, was the first in Texas.

Cullinan was president of the Texas Company until 1913 when he was succeeded by E. C. Lufkin, who entered oil first as chief engineer of the Indiana Pipeline and later as a manufacturer of pumps and other oil machinery. His father, Chauncey Lufkin, was one of the outstanding figures in the history of petroleum, having scoured the world for sources of supply for the old Standard Oil Company. In 1920 Lufkin became chairman of the Board of Directors and was succeeded by Amos L. Beaty who had long been associated as counsel for oil interests in Texas.

As you proceed with the biographies of the major Texas companies you discover that each has a story all its own. The transition of the Humble from obscure beginnings into a factor in state production is a characteristic story of American oil expansion. Once more we must go back to Spindletop for the start.

In the first flush of Spindletop two young men arrived on the scene. One was W. S. Farish, a native of Mississippi who left the law, donned overalls, boots, and flannel shirts, and worked on a well. The other was R. L. Blaffer, member of an old New Orleans family, who got a job as clerk in the local office of the Southern Pacific. They became friends and before long did what everybody else was doing, which was the buying and selling of leases. Farish was the practical man of the combination and had some of Sharp's oil intuitiveness.

As new Texas fields opened up they entered them and in a few years were successful producers. They had no books, no articles of agreement, no name under which to do business except their individual cognomen. It was a case of two friends doing business together. It became apparent, as their interests widened, that sooner or later they must have a firm which, as they looked ahead after

the manner of ambitious youth, would develop into a great enterprise. They postponed the day of organization, however.

Now we come to the third human factor. When the Humble field—another well-known Texas area—was opened up, R. S. Sterling conducted a feed store near by. In those days the automobile truck had not arrived and all oil machinery was hauled by horses and mules. Naturally Sterling's business took on a new lease of life. When an individual, no matter what his calling, lives in a new oil field, the product gets in his system. He either buys a lease or an interest in a well or company. Sterling was a little wiser than the rest in that he began to lend money on leases and property. As the field expanded he was able to start a small bank. In time he found himself loaded up with acreage due to unpaid loans. In conjunction with Walter Fondren, an experienced rotary driller, and his brother, Frank, he formed the Humble Oil Company, with a capital of $300,000.

Farish and Blaffer began to buy stock in the Humble Company. Meanwhile each had married. They realized that the time had finally come to establish a formal business because they were still carrying on in the more or less disorganized way that I have described. Coincident was the desire of Sterling to increase the company he had founded and which was growing fast. The net result was that the five individuals pooled their interests and the Humble Oil and Refining Company emerged.

In 1917 it was a modest organization owned exclusively by Texas men, producing 8000 barrels a day at Goose Creek, Humble, and West Columbia. At the close of the World War its producing properties had been expanded but the company lacked the facilities with which to transport and refine. A chance wartime meeting proved to be the approach to a new day.

During the war, and as member of the National Petroleum War Service Committee, Farish had met Walter C. Teagle, president of the Standard of New Jersey, at committee conferences. When the Humble needed money for the expansion Farish went to New York, the usual marketplace. He found bankers ready and willing to lend but at a prohibitive price. So he went back home without the funds and waited.

After the Armistice he went to Teagle and found him a ready listener. He had the production—actual and potential—and the Standard needed oil. The outcome was that the Standard of New Jersey acquired a fifty per cent interest in the Humble for $17,000,000. Later this was increased to sixty per cent.

The Standard interest was bought in Teagle's name. There were several reasons for this procedure. The Attorney General and Secretary of State of Texas had held that only individuals could be subscribers to stock newly issued by a corporation, either upon its formation or upon a subsequent increase of its capital. Moreover, some years previous, Texas ousted the Standard under its anti-trust laws.

Although the Teagle deal had been publicly known since its consummation, it was not until four years later that the Commonwealth filed suit against the Humble, alleging that the Standard was now doing business in the State in violation of the interdiction. In the Lower Court the Humble won, the Bench holding that ownership of a sixty per cent interest in the capital stock of the Humble by the Standard did not constitute doing business within the confines of the state.

With Standard capital the Humble, under the original management, spread its wings until, as I have pointed out, it has become one of the four leading companies of Texas with a network of pipe-lines and a big refinery at Bay-

town. For one thing the Humble made the great Powell field development possible. That original capital of a few hundred thousand dollars has expanded to fifty million. Behind all this development is the fact that the dream of the young bank clerk and his friend the husky driller at Spindletop, came true.

In the Humble's encounter with the State of Texas you have the initial hint of what is one of the distinctive phases of the oil business in the state. Texas is the prize trust-buster of the country. Her anti-corporation laws are aimed especially at absentee ownership, that is, foreign control of its enterprises. Naturally the path of the Standard in that part of the Southland has bristled with litigation. The Humble suit was the aftermath of a series of contests, one of which aroused nation-wide interest. A summary of it is an essential prelude to the story of the Magnolia Petroleum Company, the last of the big four.

The first chapter was written before 1898 when the Texas Attorney General sued the Waters-Pierce Oil Company, a Missouri corporation controlled by the old Standard of New Jersey—their interest was about two-thirds—charging a violation of the State anti-trust laws. After a jury trial, judgment was rendered against the company, cancelling its permit to do business in Texas, and perpetually enjoining it from doing business there. This decision was later affirmed by the United States Supreme Court. In May, 1900, the old Waters-Pierce Oil Company was dissolved and a new corporation bearing the same name was formed. It received a permit to do business in Texas. The subsequent career of this company elsewhere is of no interest here. The reason for the intrusion of this case is that it marked the first time that the Standard came to grips with the Commonwealth of Texas.

This historic case ended the public career of United States Senator Joseph W. Bailey, who had acted as attorney for the Waters-Pierce interests. In the episode you have one of the outposts of the inter-relation between oil and politics—they seem to have a peculiar affinity—that was later to be revealed in different circumstances, but with a wealth of startling exposure, by the Teapot Dome explosion.

The Standard, however, did not remain out of the Texas field. By ownership through individuals, it created the Corsicana Refining Company at Corsicana and later acquired the Navarro Refining Company and the Security Oil Company at Beaumont. Once more the State went on the warpath. It sued these organizations, got a judgment, and the properties were sold in 1909 under the hammer, by a receiver appointed by the court, for $875,000.

They were bought in by John Sealy, a private banker of Galveston and one of the richest men in Texas. For upwards of a year they were conducted by the partnership of John Sealy & Company. Subsequently a joint stock company, the Magnolia Petroleum Company, was formed to take them over. In this company, John D. Archbold and Henry C. Folger, Jr., two of the conspicuous Standard magnates, had an 85 per cent interest.

Again the Standard drew the lightning. The state of Texas brought suit seeking to prove that the Magnolia Petroleum Company had violated the state anti-trust laws, and making the Standard of New Jersey Company a co-defendant. A settlement of this case was effected, by which the Standard paid a fine of $500,000 on account of violations of the state anti-trust laws committed prior to October 26, 1909, and the case was dismissed as to the Magnolia and all other defendants. A further result was the appointment of a trustee representing the state of Texas whose function was to hold the Archbold and Folger

stock in the Magnolia. This stock was later acquired by the Standard Oil Company of New York. The state trustee, however, remains steward of it. Under this supervision the Magnolia continues as a Texas concern so far as management is concerned.

In passing, it is interesting to know that when Archbold's estate was appraised in 1918, it showed that at the time of his death he owned 66,478 shares of Magnolia stock, which were valued at $300 per share, or a total of $19,943,400. This was the largest single investment in the Archbold estate.

Various features stand out in an estimate of the Magnolia. The first is that the $825,000 paid for the original units at a sheriff's sale has expanded to the point where a capitalization of $180,000,000 stands instead. The Magnolia put over the biggest single deal in the history of American oil when it purchased the assets of the McMan Oil Company for $35,000,000. This deal, by the way, was consummated over the telephone. The McMan Oil Company, as I told in a previous chapter, was the giant that grew from a $700 investment, made in the Glenn Pool of Oklahoma, by Robert McFarlin, a small town banker, and James A. Chapman, a cattleman.

The Texas oil story, however, is not altogether the story of big companies as is largely the case in California. The fifty odd fields form a moving picture, and each reel is invested with distinct and diverting interest. Take Electra which not only again discloses the unexpected element of oil-finding, but shows that often "whomsoever hath to him shall be given."

Sprawling over north central Texas is the great Waggoner ranch of more than 600,000 acres. The owner, W. T. Waggoner, is one of the last of the cattle kings. One day in 1911 he gave orders to drill some water wells. Instead of finding water he got oil. At that time water

was an essential on the ranch and petroleum was not. Waggoner was really incensed over what he called a fluke. However, being a practical man he set to work to get an oil production and the result was the well-known Electra field, so designated from the first name of Waggoner's daughter. The twenty-story Waggoner building in the heart of Fort Worth was built entirely out of oil from Electra and it only represents a part of the earnings.

The beginning of the Ranger field in 1917 is another illustration of the chance that attends petroleum production. Chance is the apt word here because it was Ranger first, and later Burkburnett, that plunged Texas and a considerable portion of the rest of the country into a frenzy of stock speculation.

Ranger owed its inception to the tenacity of W. K. Gordon. As a young engineer he went to Texas to survey the route for a railroad from Strawn to Dublin. In his explorations he discovered coal. This black mineral was exploited by the Texas and Pacific Coal Company which subsequently came under the control of a well-known New York banking firm.

Gordon always believed that there was oil in the area that now comprises the Ranger field in Eastland county. Largely at his representations the Texas and Pacific leased an immense acreage in the section. At a certain farm where Gordon went to obtain a lease the housewife told him that her husband was out in the fields. Gordon asked her if her husband were a notary public. She had probably never heard of the phrase for she answered: "I don't know anything about that, but I do know he is a good Democrat."

In the middle of the territory leased by Gordon is the town of Ranger. When the citizens heard of Gordon's big leasing programme they said to him: "We will give you 18,000 acres if you put down some test wells."

Gordon assented. His first drilling was on a farm owned by J. H. McCleskey, less than a mile from Ranger. When he got down to 3235 feet, the New York bankers wired him to quit drilling. He had kept them informed of the progress of his work with daily telegrams. Gordon, however, was an optimist. On his own responsibility he decided to keep on, and at 200 feet further down got oil. It was the discovery well which developed a capacity of 1800 barrels a day. This was the beginning of the Ranger field.

It was also the beginning of fortune for the McCleskey family. Mrs. McCleskey was more concerned at the start about the integrity of her domestic establishment than the well that flowed with wealth almost at her front door. On the day after the well came in she invited a number of friends to a midday dinner. While she was in the midst of broiling the chickens, Gordon asked her to put out her fire for fear of starting a conflagration on her premises as the oil was flowing rather wild. At first she indignantly refused, claiming that her meal was more important than the well. The same afternoon she again became incensed, this time because the oil was soiling the feathers of her white Leghorn chickens. Needless to say Mrs. McCleskey soon sacrificed both cooking and chicken interests in favor of the compensations of the large income from royalties that streamed in. With part of his money McCleskey built a hotel in Ranger.

The first well at Ranger was the spark that started the oil fire in Central and North Texas. This is no figure of speech for there was gas in the well. The field became dotted with derricks and the rush began. Eight pipe lines were soon under construction. These pipe lines were slight compared with the conduits of hot air that rushed from the plants of the promotion companies.

One feature is worth pointing out. In 1917, when the

field was opened, the gross earnings of the Texas and Pacific Railway at the Ranger station were $94,098. In 1918 they were $2,349,334 while in 1919 they rolled up to $8,146,309. Similar station earnings in this oil field beginning at Strawn, Texas, and extending to Cisco, Texas, which embraced Ranger station, a distance of thirty-five miles, were $684,867 in 1917, and $13,080,744 in 1919 when the business was at its peak. The earnings of Ranger station in 1923 receded to $1,646,517. In these statistics you can see how the fortunes of nearly all the allied or associated interests ebb and flow with the tide of petroleum.

Ranger, with all its seething activity, was merely the forerunner of Burkburnett which made 1918 sensational in oil history. The thrill and tumult of Spindletop were duplicated. As was the case in that first south Texas field, nearly the whole country became interested at one time or another.

With Burkburnett you have the usual story of happy accident in oil discovery. In this case there is a new kink. Near the town of Burkburnett, named after S. Burk Burnett an old-time cattleman, lived S. L. Fowler, whose rather large farm was stronger on sterility than on production. For years he had threatened to sell it. His wife, with the curious instinct of her sex, always opposed this step. The discovery of Ranger and other oil fields not so very far away had put the oil bug in the atmosphere, so to speak, and she was not immune. Fowler's desire to sell became so strong that he announced to his wife one night that he had found a prospective purchaser. Her answer was:

"Don't sell until we have made at least one test for oil."

Fowler agreed and an arrangement was entered into for drilling the well. The Fowlers formed a pool among

their friends and each contributed units of one hundred dollars to defray the expenses. Now comes the most remarkable feature of all. The drilling contractor selected a certain site and ordered the tools, derricks, timbers, and machinery hauled to it. The foreman of the teamster gang took them to another spot by mistake and dumped them down. When the contractor arrived he saw that his instructions had not been carried out. Not wishing to waste any more time transporting the material he shrugged his shoulders and said: "On a big farm like this one spot is as good as another. I will drill here."

He therefore drilled a well which produced 1600 barrels the first day. A curious fact was that had he drilled the first well on the site originally indicated, he would have had a dry hole and the whole Burkburnett development would have been delayed, and possibly not started at all. Such are the vagaries of petroleum production.

Each member of the original Fowler syndicate received exactly $12,000 for every $100 that he or she put into it. Fortunately for the Fowlers the only syndicated well was the discovery one. The rest of the farm was theirs and it proved to be oil-bearing on many different parts. What was once a sterile and unprofitable domain became a gold mine.

With the discovery of oil on the Fowler farm, excitement let loose to an extent that had not been witnessed in an oil field since Spindletop. Hundreds of operators rushed to the scene and there was the usual scramble for leases. Every householder in the town of Burkburnett fondly believed that he was living over oil and before long derricks sprang up in back yards. The fond expectation of these citizens was realized because it was discovered that the town itself lay almost directly over a huge oil pool. Frenzied town-lot drilling really came into vogue

here. It was destined to be repeated on a more elaborate scale at Signal Hill and Santa Fé Springs in California.

What was happening at Burkburnett was also transpiring throughout the adjacent countryside. A month after the Fowler well was brought in, Wichita county and its environs hummed with the efforts of an oil-mad army. The roads were bad; heavy rains set in; housing accommodations were inadequate. In lieu of hotels the operators, lease-hounds, promoters, and the general ragtag who always clutter such a setting, lived on trains. The railroads were unable for a time to build tracks to keep pace with expansion. Amid all this confusion the one thing essential was being achieved. This was the flow of oil. By August, 1919, the Burkburnett field was producing 120,000 barrels a day.

I have briefly described the turmoil at Burkburnett to emphasize what to the layman is one of the miracles of oil production. In the early days of a flush field and more especially in an inaccessible region, organized output seems impossible in the circumstances. This was especially true before the era of motor-trucks, and when huge boilers and heavy drilling tools had to be hauled for miles through the mud—oil and mud seemed to be almost synonymous—by horses and oxen. Yet out of a seeming chaos the machinery rises like magic. With an almost equal necromancy pipe lines are laid, tanks rise up, telephone and telegraph lines link the outside world, and a coherent, functioning community is born. It is largely due first, to the unfailing optimism which is the chief characteristic of the oil man and second, to a dogged determination which runs it a close second.

The crowded scene in the Burkburnett field was only one part of the picture. With its development, together with that of Ranger, Fort Worth became the capital of a far-flung oil promotion movement. In this bustling city

was mobilized almost overnight the largest group of persuasive stock artists that this country has ever known. They created a selling literature that Wallingford might have claimed with pride. The office capacity of the place was taxed to accommodate them. In the same way these grafters made a corresponding tax on the savings of the people. Hundreds of companies were floated and hundreds of millions of dollars of stock sold.

Chief among the powers that preyed was Dr. F. A. Cook, who built up what was probably the most pretentious of all the stock-selling organizations. As nearly everybody knows, he and his associates, together with many others of the same ilk, both at Forth Worth and Houston, were convicted of fraudently using the mails and sentenced to prison. The whole story of oil stock promotion in America, in which the Forth Worth and Houston episodes are merely phases, will be told in a succeeding chapter. I merely refer to it here as it fits into the narrative of Ranger and Burkburnett.

To resume the story of Texas oil development is to bring us to what is so far the crowning event, which was the discovery of the great Powell field. To understand its unfolding it may be well to know that in Texas there have been four distinct oil epochs. First came that accidental discovery at Corsicana which really started production in a small way. Second was Spindletop which launched the larger oil era. The third important period was the development in north and north central Texas beginning with Electra, and ending in the Ranger and Burkburnett booms.

The fourth and latest in the progress of the industry involved a spectacular return to its birthplace at Corsicana, culminating later in the Powell bonanza. The Mexia field was really the approach to Powell. In December, 1920, Colonel E. H. Humphreys, a well-known

pioneer in western mining and petroleum exploration, who had been wildcatting in West Virginia and Wyoming, completed a small well near Corsicana which led to the discovery of the Mexia domain and secured for East Texas a prolific production.

Mexia did much more than this. The experience gained there made it possible for the student of oil-finding to suspect and determine the location of the Powell field in 1923. As I have already remarked, this immense reservoir of oil remained untouched for twenty-five years although operators drilled and produced all around it. The field, which has been the largest producer in the United States—its high tide was 356,000 barrels a day, which is the American record—was found to be a part of a great system of earth fractures which traverse Texas and which are now known to be oil-bearing.

Before Mexia, faults had generally been considered as only indifferently effective in forming petroleum reservoirs. It is worth repeating that the uncovering of Powell was due almost entirely to geology, which is more and more reducing the dry hole hazard. The great discovery which will eliminate it is still elusive.

In the development of Powell there was no hectic scramble such as obtained at Ranger or Burkburnett. It was a big acreage proposition from the start. Thanks to the accuracy of its geological investigators the Humble had more than thirty per cent of the area before production got under way. Its share of the forty-million-barrel output of last year was 9,487,870 barrels, or nearly one-fourth. The Humphreys Oil Company got 3,556,114 barrels, the Gulf, 3,061,890, and the Texas, 1,370,152 barrels.

There was another reason why the Powell expansion was so orderly. Texas has a Conservancy Act administered by an Oil and Gas division operating in connection

with the Railroad Commission. Under this Act, individuals and companies seeking to drill wells must first make application and get a permit. Furthermore all wells must be separated by at least one-hundred-and-fifty feet. The idea behind this injunction was to prevent one well from draining another. These regulations were promulgated after the furore at Burkburnett. Had they then been in force there, much petroleum could have been conserved. At Ranger the government was able for a time to check the mad drilling because we were in the World War and M. L. Requa, Oil Controller, stopped priority on shipments of pipe and casing.

In some Texas fields, and especially in Breckenridge, operators have introduced a striking innovation by pooling their interests and drilling a common well in a certain area. Here you have another antidote for the economic waste which so frequently comes in oil production.

Texas conservancy also provides for the shutting-in of gas wells. Formerly much of the natural gas produced went to waste in the hunt for the more valuable oil. In these Texas provisions, as well as those that obtain in Oklahoma, you have the germ of a movement which is vital to the integrity of our future oil supply.

Thus the Texas oil story, like the larger biography of the State, is alive with action and aglow with color. The stirring drama of border days has been reënacted more than once in the development of the petroleum fields. Oil is seldom dull under the Lone Star.

CHAPTER IX

THE EVOLUTION OF STANDARD OIL

HAVING traversed the provinces of production in this journey through the American petroleum domain we now come to its most familiar landmark—the Standard Oil Company. In the preceding chapters, whether in California, Pennsylvania, Illinois, Oklahoma, or Texas, we have encountered Standard companies or their subsidiaries to be sure, but they merely fitted into the larger picture.

Yet barely more than a decade ago any oil narrative would have begun—and for that matter have ended—with the vast industrial unit which, at the peak of its monopolistic might, controlled eighty-five per cent of all branches of the business. Today that unit, as such, is no more. Thirty-four companies, once linked for mastery of the oil empire and now operating on their own, represent less than fifty per cent of it. There could be no more emphatic evidence of the reversal of conditions in the amazing industry whose course is a continuous process of startling change.

It is a tribute to the thoroughness with which the old idea of Standard domination soaked into the American consciousness that the public still think of petroleum in terms of that one-time stewardship. Moreover there are many individuals who continue to visualize John D. Rockefeller as the Warwick of oil, dictating terms to a vassal producing and consuming world.

The truth of the matter is that if Mr. Rockefeller were to return to that principality in which he and his associates were overlords—he is the last survivor of the old

guard and long absent from the scene of his sovereignty —he would find himself on strange and unfamiliar ground. Before 1911, when the United States Supreme Court delivered its historic wallop on the solar plexus of the greatest of all trusts, the so-called independent was the exception. Now, more than 16,000 companies and thousands of individual operators are interested in oil in one way or another. It means that the field where competition was once a lost art has become the battleground of what is perhaps the fiercest rivalry in any major industrial activity.

No one need be told that the words Standard and suspicion were formerly almost synonymous. Indeed the name Standard, or rather the force behind it, has not yet lost its power to provoke. Standard-baiting, together with railroad-nagging, constituted the favorite sport of politicians for years. More men have ridden into office astride the Standard goat than almost any other agency. The citadel of that departed monopoly—26 Broadway, New York—has been the target of well-nigh incessant attack. The Standard has inspired a literature and a litigation all its own.

These are the well-known facts and they are of no particular concern to us here. What the average man wants to know is the status of the Standard today. What has happened since that fateful dissolution decree? Do those thirty-four companies really function as separate entities? What are the concrete consequences of the break-up of the most powerful business family that the trust era produced? Was an economic monstrosity created? How has it affected the oil advance? Finally, what of that Rockefeller billion and the much-discussed and little-known personality behind it? It is with the answers to these questions that the present chapter is mainly concerned.

The immediate and outstanding feature in any appraisal of the evolution of the Standard Oil Company is that somebody's judgment erred—certainly in one direction—when the break-up of the trust was framed. The aftermath of dissolution reveals the most gigantic surprise—indeed it is almost the super-joke—of these modern business times. If the powers that combined to disintegrate that one-time octopus believed that they were cramping the style of the men upon whom the task of managing the separate units devolved, they now realize that they have another kink coming. In unscrambling the biggest of all industrial omelettes they failed to kill the goose that laid the golden eggs. That bird is still a prolific producer.

Not only are the various companies that comprised the Standard trust more vigorous than ever before, but the enrichment of the stockholders and the rise of some of their officers to authority constitute a wonder-tale almost without parallel in our financial and commercial annals. The Rockefeller fortune itself will illustrate. In 1911 the book value of Mr. Rockefeller's holdings in the old Standard of New Jersey—the parent company—was $159,250,000. Today that same interest, because of reorganization and various other results of dissolution, would be worth $857,500,000. This snug sum, by the way, represented only part of the Rockefeller assets before the distribution to philanthropy and to the various members of his family began. Having given half a billion to his various foundations, and another similar sum to his son, John D. Jr., Mr. Rockefeller is struggling along on the income of the few remaining millions. Like Andrew Carnegie, he will be unable to die poor.

This colossal increment in the Rockefeller fortune is only one detail. The Standard of New Jersey at the present time represents in production, refining, marketing,

and transportation, a wealth and a prestige that exceed the total capitalization and all other combined resources of the entire Standard trust when it was dissolved in 1911. I have presented only two of the most striking features.

Then, too, there is the effect of dismemberment on the whole industry. It is the unanimous feeling throughout the business that the old Standard trust would not have been able to keep pace with the remarkable expansion of the markets for petroleum products during the past twelve years. The combine could not have attracted the necessary new capital. A glance at the figures will confirm this statement. In 1911, $2,750,000,000 represented the investment in petroleum in this country. At that time the automobile era had been cranked up to a real get-off, which means that the gasoline demand had begun to boom. The $9,250,000,000 which now represents the legitimate oil investment in the United States was largely made possible by the dismemberment of the trust. Putting it in a different way, for every dollar invested in the petroleum industry in 1911 there are now employed three and a half dollars, or an increase of nearly 250 per cent.

There is another constructive angle. At the time of dissolution there were only 6078 stockholders in the Standard of New Jersey, which owned the thirty-three subsidiaries. This number really means nothing because a little more than fifty per cent of this New Jersey stock was held by eight individuals headed by John D. Rockefeller. At the time I write there are considerably more than 300,000 stockholders in the various Standard companies that once comprised the Standard Oil Trust. In four companies alone—the Standard of New Jersey, New York, California, and Indiana—there are 142,420 stockholders. This does not include 15,000 employees of the Standard of New Jersey and 11,370 employees of the

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JOHN D. ROCKEFELLER (left) AND HIS SON, JOHN D. ROCKEFELLER, JR.

Standard of California who have been buying stock on the installment plan, aided by bonuses from the company, and who will be full-fledged stockholders of record in 1925.

What was once a "rich man's investment" as it was termed—for the old New Jersey stock sold at $840 a share at the peak price—has been brought within the range of the general investor who can benefit by Standard efficiency. So much for the preliminaries of dissolution.

Fully to comprehend the evolution of Standard Oil since the decree it is necessary to go back for a moment to the Standard that was. The methods that formed the basis of the famous government suit which led to dissolution—the bill of complaint alleged unfair practice contracts, restraint of trade, railroad discrimination, inordinate profits, and divisions of territory among the different companies—are part of the past. There are other details of that pre-dissolution era of distinct human as well as wide economic interest and they are an essential part of the larger American oil story. Hence they cannot be ignored in the task at hand.

Whatever may be said of the performances of the old Standard combine, it represented the beginning of that epoch of trade and industrial organization which made the nineteenth century great in the history of business. I do not refer, of course, to the attitude toward competition. That is another story and led to its undoing. The Standard, historically regarded, was the first expression of waste elimination, and it also incarnated the closely-coördinated activity which later found expression in the "manufacturer to consumer" idea. This is why the consumer seldom had a quarrel with the vanished trust.

Most people are apt to assume that the old Standard simply grew. It is in line with the widespread belief that luck or happy chance make men rich. No delusion could be greater. The Standard marched to power and monop-

oly because it did not ignore what the human failures in this world dismiss as the trivial things. This is why they are failures. The master assimilator of trifles was John D. Rockefeller. In two hitherto unheralded incidents in his early life you find out why he and his group ruled the oil business once they made up their mind to do so.

When he was a young bookkeeper in Cleveland on a salary of $500 a year, his employer, without glancing at the items, handed Rockefeller a plumber's bill about a yard long, saying: "Please pay this account."

This performance is a costly shortcoming of most people. Young John, being thrifty, gave the bill a careful examination and discovered various overcharges. Out of that incident came one of his cardinal rules which was embodied in the value that lies in the conservation of small sums. These pennies were like Michael Angelo's famous "trifles that make perfection." Out of them sprang the Rockefeller billion, and then some.

The second episode dealt with Rockefeller's entry into business on his own. He had saved up $800 out of his small salary when he was approached by M. B. Clark who wanted to establish a produce house and who needed a partner with $2000. John D. went to his father to borrow $1000. His parent told him that he expected to give each of his children this sum when they became of age (John was then under twenty-one) but added that he would advance the amount provided his son would pay him 10 per cent interest. The boy assented, and the firm of Clark and Rockefeller was the result. I cite this episode to show that there was never any sentimentality in business matters in the Rockefeller family. The fact that the future oil king had to pay his father 10 per cent interest on a loan sank deeply.

There is neither space nor occasion for any résumé of the development of the Standard Oil Company save in

those big and significant details which affected the development of the petroleum industry. When John D. Rockefeller and his early partners went into refining—and until dissolution the production end of the Standard was the least important feature—they found the business in the wildest confusion. The price of crude fluctuated almost within a year from 50 cents to $20 a barrel. Refining was primitive.

In those early refineries the raw material was heated to vapor in cast-iron vessels cased with bricks out of which vapors were passed off to a copper worm cooled with water. There was no attempt to save or to use the full contents of the crude. The more volatile products—the benzine and naphtha from the lighter vapor—were regarded as valueless. Men stole out from the plants in the darkness of night to empty the finest of motor fuels into the creeks where it would run away unobserved before morning. It was long before the motor-car age. The kerosene or "coal oil," as it has always been called, was the plant's only commercial product.

Oil was transported in barrels; there was no organized storage, and gambling in crude, with consequent "corners" and profiteering, added to the demoralization. Fires in warehouses were the bugbear of the industry. Old-timers have told me that it was typical of the oil psychology of the day that a fire that wiped out a refinery was regarded as a boon to all the others.

When you consider that there are 60,000 miles of oil pipe-line in the United States today—the pipe system from the Mexia fields in Texas to Bayonne, N. J., is exactly 1800 miles long—it is interesting to know that when an enterprising individual at Titusville, Pa., put down a two-inch pipe line running eighty barrels of crude a day from Pithole, one of the early oil centers, to the railroad four miles away, the oil teamsters rioted, denounced the

innovation as a blow to their right to live, and tore up the pipes. Such is ever the ordeal of progress.

Into all this petroleum confusion was projected the vision of John D. Rockefeller and his associates. They wrought the first order out of the chaos, tied up transportation, built model refineries, charted the world for the consumption of American kerosene, and brought their products to the front door of the consumer. It was this coördination—the company got its title from Rockefeller's desire to produce a standard oil—which gave the trust its premier place in the expansion of the business.

The lesson of the plumber's bill to which I have referred, was never lost on John D. Rockefeller. Economy in small things was the order from the start. Under this stimulation an expert discovered, for example, that the number of drops of solder necessary to fasten the lid on a can of oil could be reduced from forty to thirty-nine. The change was made. It saved $50,000 a year at first and more as the trade increased. Wood for oil barrels was cut, stored, and dried in its native forest before being carried out, a saving of perhaps one-fourth on that item of transportation. They carried out all wood—no sap.

In three striking features, one of them now indispensable to big industry everywhere, the old Standard was the pioneer. Since the circumstances of their origin are unknown to the reading public, I will briefly tell the story as the final section of this prelude to what happened after dissolution.

Forty-four years ago an office boy named W. E. Bemis, then in his seventeenth year, sat outside the door of John D. Rockefeller's office in Cleveland. The Standard Oil Company of Ohio, the nucleus of the great trust, had entered its second decade.

On the wall of the reception room where the boy sat, and where all who entered could read it, was posted the

price that the Standard Oil Company was paying for crude oil that day. Even then the company had begun to dominate the situation because the Standard rate was the accepted one. This practice of exposing the daily price—it frequently changed every twenty-four hours—was the beginning of what is called today the "posted price" system. The big buyers still literally post the price they are willing to give.

Young Bemis had a mathematical mind. One day he looked up at the posted price of crude and it set him to thinking. Business was slack for the moment, so he took a piece of paper and figured out the cost of manufacturing a gallon of kerosene. Incredible as it may seem, it was the first time that this had been done. After working out his problem in figures the boy took it in to Mr. Rockefeller who was so impressed that he gave orders for the establishment of an elemental statistical department. So far as I have been able to learn, it established a precedent for the elaborate statistical department which is now almost a matter of course in every well-organized business.

It goes without saying that Bemis at once graduated from the office-boy class. When the Standard Oil Company of New York was organized he was drafted into its personnel. This company led the vanguard in planting the Standard flag overseas. It was Bemis who introduced American methods of marketing kerosene into China and subsequently fought the bitter trade war there and elsewhere in the Far East, with Henri—now Sir Henri—Deterding, who was then winning his spurs with the Royal Dutch. When Bemis died he was a vice-president of the Standard of New York.

The second piece of pioneering was the establishment of a lunch-room for officers and directors, now almost as familiar an adjunct of the large corporation as the statistical bureau. This idea undoubtedly grew out of Mr.

Rockefeller's instinct for economy. He argued, and not unwisely, that since his principal associates had to eat in the middle of the day they might spend the time profitably engaged in discussing the company's affairs.

The first Standard private restaurant was started in New York in 1876 shortly after William Rockefeller established the Standard offices there. The original Standard offices of any consequence were at 140 Pearl Street. There was no space here for the lunch-room so it was set up a few doors away. Here gathered the giants who made oil history. As you may well imagine there was a fixed seating arrangement—nothing ever went by chance in the Standard—and no one ever departed from it.

I have seen that table diagram. John D. Rockefeller, although the founder and in many respects the compelling personal force in the organization until he retired in the late nineties, did not sit at the head of the table. That place was reserved for Charles Pratt. At his right, and extending toward the foot in this order came H. M. Flagler, John D. Rockefeller, John D. Archbold, J. A. Bostwick, E. J. Pouch, John Bushnell, and Paul Babcock. Extending from Pratt's left were Henry H. Rogers, William Rockefeller, Thomas Bushnell, Benjamin Brewster, F. Q. Barstow, J. Crowell, J. H. Alexander. At the foot sat James McGee. Of this group of sixteen men who formulated and carried out the original Standard policies, the only survivor is John D. Rockefeller.

It was not until 1882, when the company moved to 44 Broadway, that the lunch-room came to be in the same building as the offices. By the time 26 Broadway was occupied, in 1885—it is worth remarking that this is the best-known business address in the world—the Standard lunch-room had become an institution. Here came Chauncey Depew with his latest jokes. If ever a humorist had a hard-boiled audience he did in that Standard crowd.

Another frequent guest was Mark Twain, who was the close friend of Henry H. Rogers.

The Standard lunch-room has outgrown its original idea. Today it is attended not only by the directors but by the heads of all the various departments. Although it is running a little ahead of the story it might be well to say here that just as dissolution played many pranks with the various agencies attached to the old order, it also caused a readjustment in the lunch-room.

In the old days the directors sat at a long table. This was possible because the ownership of the thirty-three subsidiary companies was vested in the Standard of New Jersey, of which John D. Rockefeller was president. New Jersey was the king-pin. "As New Jersey goes so go all the rest," was the slogan.

With the break-up came a new deal. Each company occupying office space at 26 Broadway—and only two major companies do—took its own group of tables. The two principal tables now are for the directors of the New Jersey and the New York companies. Subordinate executives of New Jersey or New York sit at tables reserved for their respective companies.

The famous structure at 26 Broadway has always been owned by the Standard of New York. Prior to dissolution the arbiter was the New Jersey Company. Control then went back to New York to whom the New Jersey and other companies pay rent and also a fixed price for lunch whether it is eaten or not. The one way that New Jersey gets even is to bring in guests, for whom no charge is ever made.

The psychology, or rather physiology, of this matter of communal corporate eating is not to be despised. It is based on the old theory that the road to human amiability and concession is by way of the stomach. Perhaps this was also back of Mr. Rockefeller's mind when he launched

the idea. In any event he established a precedent that has been widely followed..

The third Standard innovation—it is really twins—remains a distinctive feature in the organization of all existing Standard companies. It lay first in the creation of a working board of directors, that is, a board composed of heads of departments; second, in having this board meet every day.

As most people know, the prevailing idea in directorates is to have meetings at stated periods. Then, too, most corporation boards are made up of a few company officers and others recruited from the outside. The latter may be bankers, capitalists, or corporation lawyers. Board meetings are usually held to approve action already decided on. One of the principal anxieties of the members is to get the gold piece handed out as a fee for serving as directors who do not really direct. Before the Equitable scandal in New York it was no infrequent matter for a Wall Street banker to be a member of fifty boards. Obviously he could not do his full and conscientious duty by all of them. This led to the interlocking system which built up the so-called Money Trust.

John D. Rockefeller got action out of everything he touched. Hence his idea of a directorate was one whose meetings would be a daily interchange of ideas among men charged with carrying them out. Moreover it enabled him to maintain an intimate contact with everything that was going on in his ramified affairs.

As I have already intimated, that idea is still a fetich in all the Standard Oil companies. Whether it is the New Jersey, Indiana, New York, or California organization, the board of directors today includes, in addition to the president, the one or more heads of the producing, refining, marketing, and transportation departments. There are no outsiders.

In the case of the Standard of New Jersey you have an innovation upon innovation. There are two heads for every one of the four major departments. Each is a member of the board. The senior is also a vice-president of the company. The idea behind this is that in the absence of one head, the other can be on the job and there is no break in the constituency of the board or the executive direction of the specific work.

Thus the old Standard, while conspicuously lacking in philanthropic attitude towards competition, not only put the oil business on its feet but made a very definite contribution to the efficiency of the whole modern business institution.

We now arrive at the crossroads in the destiny of the Standard Oil Company, which means that we have reached the decree of dissolution.

This momentous mandate was the culmination of years of agitation over Standard monopolistic practices. It began in 1888 when the General Laws Committee of the New York State Senate began an investigation of the general subject of trusts and Standard Oil in particular. The scene shifted to Ohio where there was active litigation, and finally brought up in the United States Circuit Court for the Eastern district of Missouri. Here the Federal Government brought suit against the Standard Oil Company of New Jersey and seven directors, alleging violation of the Sherman anti-trust law. The thirty-three subsidiary companies were also named.

The seven directors cited as conspirators were John D. Rockefeller, who had started in the refinery business with Maurice Clark and Samuel Andrews in 1862; William Rockefeller, who had joined the partnership in 1865; Henry M. Flagler, who expanded it to Rockefeller, Andrews & Flagler in 1867; Oliver H. Payne, who had participated in the formation of the first Standard Oil

Company of Ohio in 1869; Charles Pratt and H. H. Rogers, who had thrown in their fortunes when Charles Pratt and Company merged with Standard Oil of Ohio in 1874; and John D. Archbold, who became a Standard executive in 1876 when Porter, Moreland & Company was made a unit of the Standard Oil enterprise. These men were the master minds of the Standard that was.

The old Standard trust was the holder of stocks in 20 companies, as follows:

Anglo-American Oil Co.	Ohio Oil Co.
Atlantic Refining Co.	Solar Refining Co.
Buckeye Pipe Line Co.	Southern Pipe Line Co.
Eureka Pipe Line Co.	South Penn. Oil Co.
Forest Oil Co.	Standard Oil Co. (Indiana)
Indiana Pipe Line Co.	Standard Oil Co. (Kentucky)
National Transit Co.	Standard Oil Co. (New Jersey)
New York Transit Co.	Standard Oil Co. (New York)
Northern Pipe Line Co.	Standard Oil Co. (Ohio)
N. W. Ohio Natural Gas Co.	Union Tank Line Co.

The fact that the Standard Oil Company of New Jersey was made the principal corporate defendant requires an explanation, not only for the purpose of elucidating the decree, but as a guide to subsequent events. Prior to its dissolution it was composed of thirty-three companies. The total capitalization of these subsidiaries aggregated $153,040,450. Of this capitalization, $151,-153,430 was owned by the Standard of New Jersey, in which the Big Seven were the principal directors, and of which John D. Rockefeller was president. The New Jersey Company therefore was the holding organization whose stockholders owned all the rest. What New Jersey decreed was the law of the group. Now you can see why this company and its directors were the chief objectives of the government suit.

An illuminating and little-known revelation concerning the New Jersey company prior to dissolution was the allocation of stock among the powers that were. Heading the list was John D. Rockefeller with 244,345 shares. The next largest shareholder was the Harkness family with 93,670 shares. S. V. Harkness had been one of the associates of John D. in the organization of the original Standard unit. Third came the Pratt family with 58,250 shares; fourth, Oliver H. Payne with 48,000 shares; fifth, the Flagler family with 36,770 to its credit; sixth, the Rogers family with 20,190 shares; seventh, William Rockefeller with 8000 shares; eighth, John D. Archbold with 6000 shares. John D. Rockefeller, Jr., then held only 720 shares.

These holdings constituted a majority ownership although there were then 6078 stockholders in the New Jersey company. Most of the other stock was held by capitalists or estates. The old New Jersey security was a curb stock, that is, it was not listed in the New York Stock Exchange. The reason was that the Big Seven did not want a wide ownership. Minority interests are frequently troublesome.

The total number of outstanding shares was 983,383 of a par value of $100 each. At that time—1911—each share of Standard of New Jersey stock was worth approximately $650. This price, of course, included the rights in the subsidiary companies. These rights, as you will soon see, were one hundred per cent nuggets.

Since the old Standard stock was a real gold mine it may be well to take a glance at its movements prior to dissolution. Amazing as it seems in the light of its marvelous enhancement since 1911, there were times when it literally went begging. In 1882 it sold as low as 75. It reached its highest in 1901 when it brought $842 a share. That year it paid a dividend of $48. The Standard of

New Jersey dividend in the eighties ranged from $6 to $12 a share while in the decree year, when it averaged $650 a share, it paid $37. Since dissolution it has paid $20.

You may wonder why William Rockefeller had such a small New Jersey holding at the time of dissolution. The reason is interesting. Some time previously he had got cold feet on the Standard enterprise. In the late eighties he had a large holding. When the old New Jersey company shares went down to 80 he sold a big block to John D. I do not know whether brother John cautioned him about parting with a good thing or not, but the net result was that John D. Rockefeller bought whenever he had the chance, and William gave him a good many opportunities. John D.'s faith in oil was unfaltering. William Rockefeller, of course, had other large interests, especially in copper, steel, and railroads, and his defection as Standard stockholder did not materially alter his fortune for he died a very rich man. He would have been much richer had he held on to his original Standard stock.

Such was the line-up in 1911, when the United States Circuit Court found the Standard Oil trust guilty as charged, on the broad ground that the consolidation in the Standard Oil Company of New Jersey of the ownership of, and the power of control over, a large number of potentially competitive corporations constituted a combination in restraint of trade and an unlawful monopoly in violation of the Sherman Anti-Trust law. This was affirmed by the United States Supreme Court and the reign of the old Standard was over. The trust was given six months in which to adjust itself to the new order.

Stripped down to the simplest language the purpose of the decree was to cause the distribution among the stockholders of the holding company—that is, the Stand-

ard of New Jersey—of the stocks it owned in the subordinate corporations "to the end that each corporate member of the combination should in the future have and exercise corporate independence, with its own particular set of stockholders not united with, or tied to, those of its competitors either actual or potential under a single or common control." It meant that no longer could the New Jersey company from its directors' room at 26 Broadway, control, vote, or operate the thirty-three subsidiaries. The effect therefore was to destroy the combination which had exercised an 85 per cent control of the oil business in the United States, and launch the constituent parts in independent business life under the law of the land.

Now began—and it is the first real phase of the evolution of the Standard—the finest little piece of omelette unscrambling in the history of American business. Under the court mandate the specific job was the transfer by the New Jersey company back to the stockholders of the various subsidiary companies of the stock that had been turned over to the New Jersey corporation in exchange for its stock. The distribution was made pro rata among the New Jersey stockholders of record on September 1, 1911.

You will recall that there were outstanding 983,383 shares in the New Jersey company. Therefore 983,383 became the unit of distribution. If a person held one share of stock in the New Jersey Company he received 1/983,383 interest in the subsidiaries. For the purpose of popular explanation let us see what happened to an individual who was lucky enough to hold 100 shares in the holding or mother company.

The list is too long to print but he would have received a total of 267 full shares distributed in twenty-four companies, with a fractional interest in each of the remaining

nine corporations. His new holdings would have included five shares in the Atlantic Refining Company, twenty in the Buckeye Pipeline Company, ten in the Indiana Pipeline Co., fifty-one in the National Transit Co., sixty-one in the Ohio Oil Co., eighteen in the Prairie Oil & Gas Co., twenty-five in the Standard of California, and so on.

For a moment every subsidiary company had an identical list of stockholders. Almost the next moment the natural processes of change began. People began to buy and others sold. Individuals died and their estates were distributed. What was once, in some respects, the most closely-held of all stocks, flowed into a wider field, and it has been flowing ever since.

The real romance of Standard evolution lies in what might well be called the golden cycle wrought by the increase in stock values and returns, made possible by the multiplication of the consumption of petroleum products and the consequent expansion of earnings of the various companies. Since everyone is interested in the Rockefeller millions let us take them up first. At dissolution Mr. Rockefeller's 244,345 shares of New Jersey common stock, at $650 a share, which was the prevailing price, would have yielded $158,824,250. It is estimated that if the owner of one share of that stock had held it until the present time, and taken advantage of all stock rights his single share would be worth $3500 today. This means that Mr. Rockefeller's original holdings would today represent a value of $857,500,000. The cash dividends on those original shares would have paid for all new issues since 1911.

There is a wide impression that all the Rockefeller fortune is bound up in oil. This is not true. Mr. Rockefeller held a huge interest in the Chicago, Milwaukee, & St. Paul Railway, in Western Maryland, in the Union Pacific, in northwestern iron-ore properties, and in a

great many other enterprises. This would bring his total wealth to more than a billion dollars at the high tide.

I say "high tide" because some years ago he began to distribute his money. To the Rockefeller Foundation he has already given $183,000,000; to the General Education Board, $129,000,000; to the Laura Spelman Rockefeller Memorial (Laura Spelman Rockefeller was his wife) $74,000,000 and to the University of Chicago $35,000,000. In addition he also gave an immense sum to increase teachers' salaries throughout the United States.

It is also no secret that Mr. Rockefeller has turned over approximately $500,000,000 to John D. Rockefeller, Jr., whose principal occupation these days is the custodianship of his vast holdings. Among other things John D., Jr., owns 2,268,000 shares of common and 39,130 of preferred shares in the Standard of New Jersey, or 11.4 per cent. The elder Rockefeller, by the way, does not own a single share in the New Jersey company.

Despite his large ownership of stock, John D. Rockefeller, Jr., is neither a director, nor has he a voice in the control or management of the New Jersey company, or for that matter, in any of the so-called Standard group of companies. In fact he is not even a shareholder in many of them. Even if he were a New Jersey director—he once served a few months in that capacity—he could wield no authority.

This resulted from a stipulation in the dissolution decree prohibiting New Jersey directors, officers, agents, or employees, from voting any of the stock in any subsidiary company or, as the phrase went, "exercising or attempting to exercise any control, direction, supervision or influence over the acts of these subsidiary companies by virtue of its holding of their stock." Young Mr. Rockefeller comes into direct touch with the companies

in which he is financially interested only when fresh capital is necessary. He is always a considerable subscriber to any new stock issue by the oil companies in which he has retained a stock interest. These number less than fifteen.

One feature of the elder Rockefeller's benefactions is worth pointing out because it bears directly on Standard evolution. Mr. Rockefeller never gives any actual money. His gifts are in the form of blocks of stock, which are held by the boards of the various foundations and institutions he has endowed. John D., Jr., is chairman of the finance committee of each of these boards.

The query naturally arises—can the Rockefeller family still exercise a corporate control through the stock bestowed on the benefactions and the personal holdings? I asked John D., Jr., this question point-blank. His reply was:

"No strings are tied to my father's stock gifts. When he gives a large block of securities to any one of the foundations or institutions, the gift is outright. He has every confidence in the gentlemen who constitute the executive boards of the organizations. From time to time as funds are needed for the philanthropies, some of these oil stocks are sold. This shows that there is no desire to have or to hold control of the companies. While I am a member of the finance committee of these philanthropies, I am in the minority.

"This expression of confidence in the boards on my father's part is merely an evidence of a characteristic that marked his whole business life. He has always had faith in what he calls 'the other man.' When people ask him to reveal the secret of his success he invariably says, 'It was due to my associates.'"

Since the Rockefeller benefactions are in the form of huge blocks of stock, most of them oil, the endowments

have naturally increased greatly in value. Some of them have aided in big company reorganizations thereby becoming part of the Standard evolution, as this story will show.

Among the Rockefeller gifts to the Rockefeller Foundation was a large block of stock in the Galena-Signal Oil Co., one of the old Standard subsidiaries. Some time afterwards this company, in search for crude with a large lubricating content, made a deal with J. S. Cullinan, the founder of the Texas Company, who, upon his retirement from that organization, went into production and refining on his own. In exchange for his properties Cullinan received shares in the Galena-Signal Oil Co. Subsequently he felt that the state of affairs in the corporation was not entirely to his satisfaction and he threatened to bring suit. Instead, however, he pooled his stock with the Rockefeller Foundation holdings, obtained control, and reorganized the company with a new management. He is now chairman of the board. Thus the endowment stock still continues to play a part in the evolution of the old Standard.

Far more diverting than these incidents is the tale of the enrichment of the old Standard stocks since dissolution. What happened to John D. Rockefeller's holdings has been duplicated in a lesser way all down the line.

Let me begin with an illustration that antedates dissolution because it shows a miracle of increase probably unmatched in the history of American securities. Let us assume that in 1893 a certain individual invested $50,000 in the old Standard of New Jersey stock which was then selling at $125 a share. In consequence he got 400 shares. If he had held these shares up to October, 1923, and taken advantage of all stock rights accruing to him, he would have had a principal of $1,149,000 in stocks. He would have received in cash dividends $722,000. His only cash

outlay to take advantage of stock rights would have been $116,000, leaving him a net cash return of $606,000. I doubt if any similar transaction in stocks would have yielded such a return. While I am dealing with a hypothetical case in order to show the increase of values, there is no doubt that this performance has actually happened in more than one instance.

Now for the specific stocks since dissolution. In December, 1911, the Standard Oil Co. of Indiana stocks sold for $3000 a share under a $1,000,000 capitalization with a par value of $100 a share. In May, 1912, the company increased its capital stock to $30,000,000 and distributed what came to be a famous stock dividend of 2900 per cent. This increased the holding of one share to 30 shares. In December, 1920, a stock dividend of 150 per cent was paid, which increased these 30 shares to 75. At the same time the company reduced the par value of the stock from $100 to $25 a share. Our 75 shares now expanded to 300 shares. Two years later a stock dividend of 100 per cent increased the number to 600 shares. Yet this began with one original share.

At the time I write, Standard of Indiana stock is selling around $62 a share, giving the 600 shares a value of $37,200 or a profit on the original cost of exactly $34,200 during a period of twelve years. This would be the equivalent of an average annual appreciation of 95 per cent on the investment. During these twelve years a holder of one original share, had he retained it, would have received a total in cash dividends of $10,920 which would be an average of $910 a year, or thirty per cent per annum on the initial $3000 investment.

Now turn to the Standard of California. In December, 1911, the stock could have been purchased for about $125 a share, the capitalization being $25,000,000 with par value at $100. In this illustration we will take a unit of

ten shares which could have been purchased at dissolution at $1250.

Unlike the Standard of Indiana, the California company, in addition to distributing stock dividends, has also given its stockholders the privilege of subscribing to additional capital stock at par. There is no need of going into the various steps because results are what we want to know. Had the holder of the original ten shares purchased at $125 a share held them until the end of last year, retained his stock dividends, and taken advantage of all stock rights, he would have had a total of 356.4 shares of a par value of $25 each because the par value was reduced from $100 to $25 in 1921. His stock would have been worth about $60 a share or a total of approximately $19,000, equal to an average annual appreciation over eleven years on the amount invested of over 68 per cent. He would have received in cash dividends $4,091.40 or a return of about 17 per cent.

Following dissolution, Standard of New Jersey common could have been purchased around $350 a share. This was of course after the distribution of stock of the various subsidiary companies. During the following twelve years the company distributed a 400 per cent stock dividend and a $40 special cash dividend representing the repayment of a loan by former subsidiaries. The par value was also reduced from $100 to $25 a share. Summed up, the relation of the present New Jersey share to the original is on the basis of twenty to one. If John Jones, for example, had one share of New Jersey stock in 1911 he would have twenty shares today with a total value of $720 as compared with the 1911 price of $350 for one share.

I could continue this list of Standard stock enhancement almost indefinitely. The point to be made, however, is that every share of original stock, whether in the parent New Jersey company or in the subsidiaries, has increased

enormously in value. Hence one of the principal results of dissolution has been the writing of a really gilded legend in our larger security narrative.

This stock-value enhancement was made possible because the various companies comprising the original trust have expanded to a degree undreamed of by the original promoters and those who brought about disintegration. The beginning was not easy.

When the dissolution mandate landed like a thunderbolt, and the unscrambling started, the most extraordinary economic monstrosity that American business has ever known was temporarily revealed. Under the old trust order the whole country had been parceled out among the various subsidiaries so that those who marketed products had a certain area all their own. The Standard of New York, for example, was the master of New England; the Standard of Indiana dictated to the Middle-West; the Standard of California ruled the Pacific Coast. The Ohio Oil Company was solely a producer. The Prairie Oil & Gas Company was both producer and transporter. Galena-Signal and Vacuum Oil specialized in lubricants.

Although the thirty-three companies had their various and individual activities, they functioned together. The Ohio Oil Company and the Prairie Oil & Gas Company provided the New Jersey refineries with oil; New York bought most of its kerosene and gasoline from New Jersey, the various pipe-line companies transported crude for many of their sister corporations. In short, you had a vast and coördinated institution that was self-sufficient save in production. It was characteristic of the canniness of those early Standard organizers that they left the hazard of finding and financing the oil well largely to the other fellow.

On the financial side there was the same cohesion.

The Standard of New York was the banker of the trust. When a subsidiary company needed money it appealed to the New Jersey board which authorized New York to find the funds.

Moreover, although the New Jersey board was not identical with the directorates of the thirty-three subsidiaries, the president of every important corporation in the group was a member of the New Jersey board. Thus H. C. Folger, Jr., who headed the Atlantic Refining Company; J. A. Moffett, president of the Standard of California and of Indiana, and John D. Archbold who was chief executive of the Ohio Oil Company, sat in the holy of holies, otherwise the board room at 26 Broadway.

The dissolution decree, while not prohibiting the subsidiaries from doing business with each other, rent this happy family asunder. The Standard of New Jersey found itself with a big refining capacity but with little production. New York had a close-knit marketing system here and in the Far East but with very limited refining facilities. Indiana was absolutely without production but had refining and marketing machinery. Ohio Oil was producing oil but without any outlet. So it went. As some one remarked, "the Standard subsidiaries were all dressed up but did not know what to do or where to go."

Let us look at the big facts first. On the day prior to dissolution, the Standard of New Jersey had net assets of $660,000,000. Its daily production in the United States was 87,000 barrels or 16.67 per cent of the total output of the country. Its refinery runs every twenty-four hours were 265,000 barrels or 44.25 per cent of the total refining capacity of the United States. These figures, it will be well to keep in mind, represented the activities of the whole Standard group.

On the day following dissolution, the Standard of New Jersey as a detached company had a daily production of

only 8000 barrels or 1.53 per cent of the total of all the American fields. Its daily refinery runs were 92,488 barrels or 13.21 per cent of the total United States refining capacity.

The immediate task of New Jersey, as well as every one of the former subsidiaries, was to reorganize. The first historic step was the retirement of John D. Rockefeller who had continued as nominal president of the New Jersey company up to dissolution. He was succeeded by John D. Archbold. It may be interesting to note that throughout its long history the New Jersey Company has had only four presidents. A. C. Bedford succeeded Archbold. When Bedford became Chairman of the Board in 1917, his place was taken by Walter C. Teagle.

Each former subsidiary had to establish a complete new group of officers and name a new board. J. C. Donnell who, by the way, has produced more high grade oil and drilled more wells than any other American individual, and who is the only man who calls John D. Rockefeller by his first name, became president of Ohio Oil. D. G. Scofield was elevated to the presidency of California; W. P. Cowan to the headship of Indiana, and J. W. Van Dyke to be chief executive of the Atlantic Refining Co. I have enumerated only a few changes.

These men, however, were members of the old guard and had been identified with the trust era. One of the really notable results of dissolution has been the opportunity afforded, first for the stockholders to become rich; second and far more important in a big human way, for young men to rise in the service.

The case of Walter Teagle will illustrate. Although he was a director in the old Standard of New Jersey at the age of thirty and the youngest man to hold that post, he might possibly not have had the chance to become the commanding figure that he is in American oil under the

former régime, which was not strong on youth. He was made president of the New Jersey company in 1917 when he was only thirty-nine.

In the same way K. R. Kingsbury, who once stoked a furnace at a pumping station, rose to be president of the Standard of California at forty-three, while Robert Stewart went from member of the legal staff to the Chairmanship of the Board of the Standard of Indiana at fifty.

There is another interesting phase. The one-time trust was practically administered by its owners. Now it is a case of the absentee landlord because the men in the Standard saddle today are, with few exceptions, salaried officers and not capitalists with large stock-interests in their business.

With dissolution the word "independent" came into being to indicate any individual or corporation not a part of the old Standard combine. All former subsidiaries are still designated as members of the so-called "Standard group," although in effect they are separate entities. The phrase is really a misnomer.

Once the evolution began no time was lost. The net result of dissolution is that today the total stock capitalization of the Standard of New Jersey and all the former subsidiaries amounts to $1,941,013,469. This includes preferred as well as common issues. If to this sum is added the capitalization of the various corporations such as the Humble Oil and Refining Company, Imperial Oil, Ltd., and other subsidiaries of the present New Jersey Company, and that of the Magnolia Petroleum Company, which is owned by the Standard of New York, you have a grand capitalization of $2,346,348,999 or twenty times the capital of the old New Jersey Company.

This reference to subsidiaries discloses still another interesting feature of Standard evolution. Where for-

merly the old New Jersey had its thirty-three subsidiaries, many of the big companies, and especially the former parent one, now have their own string of adjunct organizations. New Jersey, for instance, has exactly forty-six subordinate companies, most of them in foreign countries. Vacuum Oil has twenty-one, all of them in alien fields. Although the Standard of New York operates abroad largely in the Near and the Far East, the activities are all under the New York name.

What was once the tail of the Standard trust kite—and by this I mean the production end—has evolved into a tremendous factor. During 1923 it is estimated that the old subsidiaries produced 310,000 barrels a day, or about 15 per cent of the whole United States production. Add to the New Jersey home production of 109,379 barrels and you find that New Jersey and all its mates of the former combine produced 20 per cent of all the oil garnered in this country last year.

To enumerate the development of the major Standard companies since 1911 would be to chronicle a considerable portion of American petroleum expansion. Since the New Jersey company was the storm center of that departed trust day we will use it as a concrete illustration to show the Standard advance. Its growth is one of the miracles of that succession of marvelous transformations which make the oil record so remarkable.

From 8000 barrels a day its production, including the foreign output, has grown to 194,000 barrels. The capitalization at dissolution of $100,000,000 has expanded to $698,560,025. The estimated net assets are $925,000,000. Its tankers—with those of the subsidiaries they number ninety vessels totalling 897,000 dead-weight tons—comprise the largest privately-owned fleet flying the American flag. It is therefore the largest single unit in the oil business anywhere in the world. The only contender for this

distinction is the Royal Dutch Shell combination whose total assets aggregate a little less than $750,000,000.

The Royal Dutch Shell group benefited materially by the dissolution decree. By following the Standard's former method of combination, they have effected mergers of practically all the foreign petroleum interests. Thus they are able to present a united front against the efforts of the American companies who must fight singly for a share of the petroleum fields of the future.

We have now briefly run the range of Standard evolution. We have seen how the dissolution decree converted the octopus, for the time being at least, into an economic monstrosity, and also how those dismembered parts through intensive management, and the amazing development of automotive transportation, have expanded into lusty giants on their own. The final query therefore is—do these separate units really compete with each other? There is a wide impression throughout the country that they do not. What are the facts?

The principal basis of the contention that there is a close understanding between the Standard companies is the fact that each Standard marketing company still occupies and supplies a distinct and more or less arbitrarily bounded territory. The Standard contention, in justification, is that the founders of the trust, not contemplating that the subsidiaries would ever compete with each other, divided the country so that each Standard Oil plant was situated so as to serve its contiguous territory to the best economic advantage. It was the strategic location of these plants in respect to transportation that gave the corporation its dominating position in the industry then, and which is the barrier to general competition among the separated units now.

Once more let me use the Standard of New Jersey to illustrate. The point is frequently raised as to why this

company has not created marketing facilities of its own in the States supplied by the Standard of New York, to say nothing of those served by the Atlantic Refining Company, and the Standard of Kentucky.

Since there is no other procedure open let me present the explanation of the relation with the New York Company, as given to me by the New Jersey Company. Here it is:

"The dissolution left the Standard Oil Company of New Jersey with refining facilities on New York harbor in excess of the requirements of its domestic or export markets. These excess refining facilities had been created by the former organization to supply in part the domestic marketing business of the Standard Oil Company of New York in eastern New York and New England, and were ideally located for this purpose.

"The Standard Oil Company of New York, at the time of the dissolution, was not a large manufacturing unit, and its refining capacity on New York harbor was limited. The Standard Oil Company of New York, however, had a very large investment in distributing and marketing facilities in the States above referred to, and it was the natural and logical sequence of events that the Standard Oil Company of New York, in these circumstances, should seek to buy a part at least of its requirements from the New Jersey Company. To have duplicated the Standard Oil Company of New York's marketing facilities would have necessitated a very large expenditure by the Standard of New Jersey. The conclusion of its directors was that the supply of capital available to them being insufficient for both, it was the part of wisdom to proceed with the creation of an adequate and certain crude production, and to keep pace with its own expanding domestic and foreign markets, rather than to embark upon a marketing campaign in a field which the company was already, as a wholesaler, supplying in part.

"This is what happened after the dissolution and has been continued to the present. Under a yearly contract we obligate ourselves to sell to the Standard Oil Company of New York definite and fixed quantities of gasoline and refined oil, and the price basis of the contract is that it must not be higher than the current price at which we invoice the same products to our foreign subsidiaries and our domestic trade department. We also sell the Standard Oil Company of

New York, when from time to time it is in the market, other petroleum products, such as lubricating oil, fuel, and gas oil, at fixed and competitive prices. Our sales to the Standard Oil Company of New York for the year 1923 amounted to over $46,000,000.

"Other than these sales contracts and certain minor transactions, such as lighterage facilities in New York harbor, rent of certain offices, the Standard Oil Company of New Jersey, has no contract agreement or understanding with the Standard Oil Company of New York. The same conditions exists with the Standard of Kentucky and the Atlantic Refining Company."

When I asked Walter Teagle if he were in competition, so far as refined products were concerned, with other members of the so-called Standard group, his reply was:

"During the first six months of 1923 the Standard of New Jersey's total domestic sales, not including the export trade, aggregated 21,155,820 barrels. Of this amount 44.7 per cent was in the various states in which the company maintains local distributing facilities; 20.9 per cent were sales to former subsidiaries such as the Standard of New York, the Standard of Kentucky and others, while 34.4 per cent represented sales outside the districts in which the company maintains local marketing stations and in direct competition with the former subsidiaries."

On the other hand the Standard companies are in keen competition for production in nearly every big petroleum area east of the Rockies. In the Burbank field of Oklahoma, for example, the bidding of the Carter Oil Company, which is owned by the Standard of New Jersey, against the Prairie Oil & Gas Company, one of the former subsidiaries, and the Standard of Indiana, helped to shove the price of those Osage Indian land leases up to their record height. Likewise state and municipal biddings for asphalt and road products look like lists of the old subsidiaries.

There is no doubt, however, that the lesser Standard companies, in common with other petroleum corporations,

take their cue from men of the type of Bedford, Teagle, Kingsbury, and J. C. Donnell, in very much the same way that the trade policies of the leaders of any other industry are generally followed by the lesser lights in it. The procedure of these outstanding Standard administrators is adopted not as a matter of duty, but of commercial expediency.

Finally, whatever attitude you may have toward the Standard that was, and regardless of how you feel concerning the Standard units that are, one thing is certain. As organized and operated, the old oil trust was not compatible with the letter or the spirit of economic democracy. The dissolution decree was the final expression of the public will on the subject of monopolistic control. In a larger sense it was the ill wind that blew good to every agency concerned, not excepting the Standard itself.

CHAPTER X

OIL IN THE WORLD WAR

THE history of American oil would be incomplete without the record of its contribution to victory in the World War. It is the stirring story of one phase of the business side of the greatest conflict in history which reduced destruction to a science. In this organized process of elimination petroleum played a conspicuous part. It was the Yankee article that proved to be the very lifeblood of battle.

Nearly everybody knows that our petroleum products flowed almost unceasingly across the Atlantic from the day that the Germans ran amuck in August, 1914, until a merciful Armistice silenced the great guns on November 11, 1918. The average person however does not realize the immense drama of unselfish and patriotic coördination that made possible this flow of petroleum through the dangers of the deep. It is really an epic of endeavor that will always redound to the credit of the entire American oil industry.

Any account of oil in the Great War naturally falls in two sections. The first deals with the indispensability of petroleum to the conduct of hostilities. The second relates to the mobilization of American oil resources under the auspices of the National Petroleum War Service Committee.

When you analyze the World War you immediately discover that it was a war of machinery. In the old days, guns, ammunition, and supplies were moved by horse and mule power. It was not until the succession of wars

in the Balkans that the motor got into action on the battlefield. It reached its highest development in the Titanic struggle in which a considerable part of civilization was aligned against Teutonic aggression. Long before we arrayed ourselves on the side of the Allies far-seeing observers knew that in the last chapter, the name of the winning side would be German or Allied as one or the other succeeded best in obtaining the petroleum supplies which were essential to every military and naval enterprise.

Here you have one explanation of the relentless German submarine offensive. While it was aimed primarily at starving out Great Britain, the real objective was to prevent the needful petroleum, carried in tankers, from reaching the Allied armies and navies. We lost ten tankers before we fired a shot in the war. They precipitated diplomatic complications that brought us to the verge of conflict. As hostilities developed the oil well became as important an objective as the strategic city.

The Russian offensive against Lemberg was organized to cut off Germany and Austria from the rich oil fields of Galicia. One reason why both sides coddled Rumania was to secure her petroleum domain. After Rumania cast her lot with the Allies, Mackensen's great drive which brought up at Bucharest was for the purpose of securing the Rumanian oil fields. In the operations of Turkey against Russia the immense oil area centering at Baku was the goal, while the early British operations in Mesopotamia were intended to conserve the huge British-owned petroleum empire in Persia.

From that historic evening early in September, 1914, when General Gallieni's reserve army swept out of Paris in taxicabs, joined Joffre's forces, helped to deliver the crucial blow that blocked the Germans at the Marne, and saved the capital, the automobile was a constantly increasing factor in the waging of the war. In this particu-

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THE NATIONAL PETROLEUM WAR SERVICE COMMITTEE

1. A. C. Bedford, Chairman; 2. E. C. Lufkin, Vice-chairman; 3. Mark L. Requa, Director of the Oil Division of the Fuel Administration; 4. Martin Carey; 5. J. W. Van Dyke; 6. Walter C. Teagle; 7. James E. O'Neil; 8. H. F. Sinclair; 9. John H. Markham, Jr.; 10. George S. Davison; 11. George W. Crawford; 12. Edward Prizer; 13. Thomas A. O'Donnell, 14. J. Howard Pew; 15. Ivy L. Lee; 16. Samuel Messer; 17. C. C. Smith; 18. J. A. Moffett, Jr., Secretary; 19. Joseph F. Guffey; 20. Henry L. Doherty; 21. J. C. Donnell; 22. James H. Barr; 23. Frank Haskell; 24. W. S. Farish; 25. A. G. Maguire; 26. E. W. Clark; 27. W. P. Cowen; 28. M. J. Byrne; 29. J. A. Middleton; 30. R. L. Welch; 31. H. M. Blackmer; 32. J. S. Cosden; 33. A. P. Coombe; 34 Harry M. Felton; 35. R. D. Benson.

lar case it provided the pivot on which the whole Allied cause turned. If Paris had fallen before Von Kluck's drive no man knows what might have happened. The abused taxi earned its crown of glory that night.

In the British, French, Italian, Belgian, Russian armies, and subsequently in the American Expeditionary Force, the wing technically known as Mechanical Transport was, in some respects, the most highly organized, as well as the most effective, of all the branches. As a matter of picturesque fact the British Mechanical Transport in France on any kind of scale really began with that lumbering engine of peace, the London omnibus. At the outbreak of hostilities thousands of them were literally taken from the Strand, Piccadilly, and other streets of the metropolis and shunted into the war area. They were used to convey the "Old Contemptibles" as the first immortal army was called that dashed to the relief of Belgium.

In connection with their advent in France occurred one of the amusing incidents of the war. Since these 'buses were rushed from the highways of peace into the zone of war, they appeared on the French roads carrying the advertising that had become familiar to the London population. The virtues of soaps, matches, and safety-razors were still extolled on their sides. At that time "Potash and Perlmutter," rendered into a play, was having its first run at a well-known London theater. Nearly every London 'bus carried a huge sign which read "See 'Potash and Perlmutter' at the Queen's Theater."

This injunction in huge letters burst upon the unsuspecting people of France. When the first line of 'buses filled with British Tommies swept up the road to Mons the French soldiers and civilians stood at attention on the roadside and yelled:

"*Vivent les Generaux Potash and Perlmutter!*"

They thought that the names of the famous Jewish merchants were those of the British generals in command of the Expeditionary Force.

Petroleum made possible one of the biggest and most effective surprises of the war. It was the tank—the land battle-cruiser first introduced by the British at the battle of the Somme in July, 1916, and subsequently employed by all the armies. The aeroplane, of course, was useless without gasoline, while the submarine, with which the Germans struck terror in the Allied heart for a time and which ultimately proved to be her undoing, was oil-fueled. The deadly explosive known as T. N. T. was manufactured from toluol, a basic constituent of petroleum.

Knowing these facts you can readily understand the despair that oppressed the Allies in 1917, which was the darkest hour of the war, when even for the briefest time the supply of petroleum was seriously menaced. It was about this time that Marshal Foch declared: "We must have oil or we shall lose the war."

But the Allies got the oil, largely because of the intrepidity of the American seamen and the courage of the industry behind those tankers that flew the Stars and Stripes. In 1915 we supplied England, France, and Italy with 3,281,730 barrels of gasoline and 8,177,000 barrels of fuel oil. In 1916 we shipped 4,742,000 barrels of gasoline and 8,294,000 barrels of fuel oil.

We now come to that fateful hour when America emerged from her isolation and joined the Great Cause. Much was expected of us by those gallant Allies who for three long and agonized years had borne the brunt of battle. No detail of that anxiously-awaited official aid was more vital than an increasing supply of petroleum products. That it was a difficult problem went without saying. Between the base of our supply and the war

market, as it were, stretched three thousand miles of submarine-infested sea. We now had our own tremendous war needs to purvey as well as the growing demands of England, France, and Italy, whose oil consumption, with the increase of their armies, advanced by leaps and bounds.

Imagine, for a moment, the apparently hopeless situation that confronted those faced with the necessity of consolidating the petroleum interests of the United States. There was no national association through which a start could be made, no common meeting ground except that of patriotism. By its very nature the petroleum industry had constantly warred within itself. Each big company had grown around a strong and aggressive personality, and there was little or no genuine community of action. The producers usually feel that they do not always receive an adequate price for the raw material upon which the other phases of the business are absolutely dependent. They have no market for their production outside the large purchasing companies and the refiners, because their product is of no value to the consumer in the form in which it comes out of the ground. With a score of grades of petroleum, and the attendant price differentials, and the never-ending race for leases in new producing fields, the industry was about as disorganized as it could possibly be.

Any attempt on the part of the Federal Government to dictate to such an industry would have derived force only according to the patriotism of the individuals affected, for no power of law can compel a man to produce oil from his well if he does not regard the price offered as a fair one. To consolidate deliveries of the different finished products for shipment abroad meant, in many cases, the sacrifice of domestic markets which had been obtained by the refiners with much difficulty. In these

circumstances it was fortunate for civilization that the petroleum business was composed of Americans willing to subordinate personal considerations to duty, and who now, without compulsion from the outside, mobilized their resources with a single eye to the defeat of Germany.

It was on Thursday, March 22, 1917, that Bernard M. Baruch, who had been entrusted by President Wilson with a command little less important than that later given General Foch, called on the Standard Oil Company of New Jersey to coöperate in securing for the government and for the other governments soon to be associated with the United States in the War, their requirements of oil. Baruch informed A. C. Bedford, then president of the New Jersey Company, that he had been told by the President that war would shortly be declared.

Baruch was one of the most remarkable discoveries of the war. Known up to that time only as perhaps the most spectacular and successful stock-market operator in the country, he was the last man who would have been selected to head the Council of National Defense by any one but President Wilson. Few, even among Baruch's own friends, realized the tremendous vitality that he gave to the forces that he mobilized both for supply and for defense.

As member of the Advisory Commission of the Council of National Defense, Baruch proposed at once to organize coöperative committees in steel, copper, cotton, oil, lumber and foodstuffs, each to be composed of men of standing and ability in these industries. He knew that he could accomplish more by putting the responsibility of furnishing supplies directly up to the leaders in the different lines of activity than he could by bringing to bear the power of the Federal Government to enforce obedience to general orders. He went about this organization work with his customary enthusiasm, and a promise that

politics would have no bearing whatever on the selection of his assistants. On this basis, he asked Bedford, himself a member of the opposite party from that of Baruch and President Wilson, to organize a committee on oil and become its chairman. On the following day Bedford accepted the responsibility. In a week most of the members nominated for the committee had been reached and had accepted, but formal organization was delayed until a week after the declaration of war by the United States.

In delegating A. C. Bedford as chairman a high compliment was worthily bestowed. A link with the old oil era, for he had been a director of the original Standard of New Jersey, he was likewise one of the most distinguished factors and figures in the evolution of the industry following the dissolution of the Standard trust. His career as head of our vast war petroleum activity confirmed his title as the foremost American oil statesman.

The original members of the Coöperative Committee on Oil of the Advisory Commission of the Council of National Defense, which was to play such a momentous part in tipping the scales of victory, were A. C. Bedford, E. C. Lufkin, then President, and now Chairman of the Board of the Texas Company, who was made Vice-Chairman under Bedford; John Markham, Jr., a prominent independent producer of Tulsa; E. L. Doheny, President of the Mexican Petroleum Company; H. F. Sinclair, President of the Sinclair Consolidated Oil Company; George S. Davison, President of the Gulf Refining Company; H. C. James, President of the Western Petroleum Refineries Association; William Muir, President of the National Petroleum Association; J. W. Van Dyke, President of the Atlantic Refining Company and J. A. Guffey, President of the Natural Gas Association. J. A. Moffett, Jr., at that time a member of the Marketing Committee of

the Standard Oil Company of New Jersey, was made Secretary of the Committee.

In subsequent months W. C. Teagle, now President of the Standard Oil Company of New Jersey, Samuel Messer, J. S. Cosden, Frank Haskell, W. S. Farish, Dr. Van H. Manning of the Bureau of Mines, R. D. Benson, J. H. Barr, Judge M. J. Byrne, A. G. Maguire, Edward Prizer, J. Howard Pew, Martin Carey, B. G. Dawes, H. L. Doherty, W. P. Cowan, A. P. Coombs, R. W. Stewart, H. E. Felton, J. E. O'Neill, J. C. Donnell, H. M. Blackmer, George W. Crawford and R. L. Welch were added to the Committee. These men represented most of the larger units of the industry and all of the prominent associations.

Recognizing that the size of such a committee made it unwieldy, and that attendance of all the members would take too much time from the work of the various companies, advisory committees were promptly organized to deal with jobbers, oil-well supplies, tank-cars, pipe lines, natural gas, and law. Sub-committees on distribution, transportation, production, and direction were also named. Geographical advisory committees were likewise appointed to cope with the particular problem of the several sections.

From the outbreak of the war in August, 1914, until our entrance as a participant, the production of crude oil had not kept pace with the growing consumption of the products. There had been a great increase in domestic requirements as a result of the placing here of war contracts, and the resulting general expansion of business, in addition to the normal growth due to the increase in the number of motor cars in use.

The big problem confronting the authorities at Washington and by them delegated to the committee organized under Baruch, was to meet the heavy increase in petro-

leum requirements. While the expectation at that time was that this increase would be gradual, there was a certain pressure for an immediate addition to our supplies, particularly for the Navy. Five times as much fuel oil was consumed by the Navy on a war basis as had been taken in times of peace.

The Allied fortunes were at a low ebb on April 6, 1917, when Congress declared war, and they continued so for some months afterwards. In this period the belief was rather widespread that neither side could win a military victory but that the struggle would end in complete exhaustion.

On January 31, 1917, Germany had announced unrestricted submarine warfare in specified zones. In March the Russian revolution became an established fact. In the same month the retirement of the Germans to the Hindenburg lines had put 1300 square miles of devastated territory between the German Army and any immediate danger from serious attack on the part of the Allied army.

There were many who thought that the entry of the United States into the war—so great were her resources in man-power and material—meant an early victory. These optimists did not realize how unprepared this country was to take immediately an active part in aiding the Allies. It is a matter of history that the world nearly suffered a German victory in May, 1918.

In the spring of 1917 dispatches had been received from Great Britain requesting greatly increased quantities of fuel oil as well as ships to carry the oil across the ocean. The situation on the other side had grown so serious that the British Government did not dare trust an explanation of the actual condition to the cables but sent representatives to Washington to put the facts before our government. It developed then that in the absence of immediate assistance from this country, there would have to be a

partial demobilization of the British fleet and a curtailment in operations of the army. Like conditions prevailed in regard to supplies of the French and Italian Governments. Drastic conservation measures had been adopted at home by these three European governments, particularly as to the use of gasoline. Neither commercial nor passenger automobiles were allowed to operate except on urgent business.

This situation had developed practically overnight because of the activities of the submarine. There was not only the destruction of tank steamers with their cargoes, but there were also delays resulting from the damage to vessels by mines and submarines. The breaking-up of schedules had upset all calculations as to the receipt of new supplies.

At the same time the widening military operations had thrown out all estimates as to the use of stocks on hand. The destruction of French railroads had made it necessary to maintain the lines of communication with motor vehicles. The consumption of fuel oil by British, French, and Italian fleets in patrol work made a much heavier drain than had been expected. In short, the submarine activity rendered useless every inventory as to the sufficiency of oil reserves, and materially increased the burden laid upon the American petroleum industry.

That the American oil industry met this emergency at great sacrifice the world now knows. Few realized it to a greater degree than the late Lord Northcliffe. He had come to America in June, 1917, to head the British War Mission and to coördinate the vital question of supplies for the British naval and military forces.

As it happened, I made that trip with him on the old *St. Paul* of the American Line on which I traveled so often during the war. Every day, as we lunched, dined, or walked the decks together, Northcliffe spoke of the

seriousness of his task and particularly the vital importance of an adequate petroleum supply for his country. One of the first persons with whom he established contact in New York was A. C. Bedford. He laid the facts frankly before him and there was instant response.

In an amazingly frank letter from the United States, to the lamented Walter H. Page, who was American Ambassador to Great Britain prior to our entry into the war and during the trying period that followed, Northcliffe paid high tribute to Bedford and his associates in the Standard. The particular reference, which is also an illuminating piece of unwritten war history, is as follows:

"In great privacy let me tell you of an enormous responsibility that was placed on my shoulders one midnight, in the form of a desperate cable from A. J. B. (Mr. Balfour) as to the immediate putting of our fleet out of action owing to an apparently suddenly discovered shortage of oil. I had only been here a few days but long enough to know that such fuel is already scarce here. I knew that that cable, if discovered, would cause such a jump in the oil market as had never been known. I was up bright and early, I can assure you. A little cautious pussyfooting as to the oil fuel situation brought no comfort—great demand, small supply, nothing doing. I read and re-read that telegram, and finally called up the Standard Oil head man.

"We met and I gave him the cable to read, despite its 'Most Urgent Most Secret' inscription. He read it slowly twice, gave it back to me, saying 'If it can be done, it will be done.' I said nothing whatever about price. These people started in right there, and oil is pouring across the Atlantic with giant strides, and at a lower price than we have averaged over here. They could have squeezed millions out of our trouble if they had chosen. When I thanked them, they merely remarked, 'It's our war as well

as yours.' I can imagine the panic at No. 10 if they had known that I had disclosed that cable to the oil controllers."

Appreciating the vital necessity of keeping up and augmenting shipments, the American oil companies voluntarily contributed fifteen vessels to the needs of the Allied governments, which they chartered to them at one-third the market rate. The diversion of these ships meant not only the sacrifice of profits, but materially interfered with the operation of the Atlantic Coast refineries. This, in turn, necessitated a general revision of the entire plan of distributing crude oil and its finished products. As if the situation were not already bad enough, the Navy Department of the United States without warning commandeered six additional tank steamers to take care of the needs of the American destroyers abroad.

This was the prospect that faced the newly created petroleum adjunct to the Council of National Defense. It was recognized that the committee should have unquestioned authority as representing the entire industry, but the desired endorsement was not obtained until the War Convention of American business men held in Atlantic City in September, 1917, under the auspices of the Chamber of Commerce of the United States.

At this meeting it was voted to continue the self-constituted petroleum committee as an official trade committee to be known as the National Petroleum War Service Committee, under the control of the United States Fuel Administration of which Dr. H. A. Garfield was Chief. Upon the appointment of M. L. Requa, a well-known California engineer, as Chief of the Oil Division, the National Petroleum War Service Committee became a recognized medium of communication between Dr. Garfield's administration and the oil industry of the country.

After a few weeks of operation Requa wrote to the Chairman of the National Petroleum War Service Committee as follows:

"It is my desire that the oil industry shall to a great extent govern itself. It seems obvious that this must be the case if we are to achieve maximum efficiency. If it does so govern itself successfully it is evident that it must have some centralized body which will be the point of contact with the oil division in Washington. The National Petroleum War Service Committee is preëminently the body to represent in a large part the oil industry."

Henceforth the National Petroleum War Service Committee not only regulated itself without the slightest governmental interference or suggestion—a performance practically without precedent so far as our industrial conduct of the war was concerned—but stoked the insatiate furnaces of conflict unceasingly. It justified every confidence placed in it by the Fuel Administration.

During the war the consumption of gasoline by the French armies was 35,000 tons a month, of which some 30,000 tons came from the United States. Between September, 1917, and the end of the following January, American refiners sent to France more than 90,000 tons of gasoline or nearly 550,000 barrels. At times during the terrific struggle of March, 1918, when Allied troops were hurried to the front lines in motor lorries, the Allied armies in France consumed 650,000 gallons a day. Most of this came from the United States.

In a war where statistics were staggering the figures concerning American petroleum shipment stand out. In 1917 we shipped 6,022,781 barrels of gasoline and 16,000,000 barrels of fuel oil to England, France, and Italy, and in 1918, 9,201,009 barrels of gasoline and 22,000,000 barrels of fuel oil. In 1918, 2,628,961 tons of fuel oil alone went from the Eastern seaboard of the United States for

the use of the Allied navies in Europe. Perhaps the best summary of the American industry's part in the war was conveyed in a telegram from Captain Paul Foley, U. S. N., who wired the National Petroleum War Service Committee after the Armistice as follows: "No military operation of the Allies on sea or land, under the sea or in the air, was ever interrupted by the lack of petroleum supplies."

An illuminating indication of how the Allies relied on the United States for petroleum supplies is in the forecast made by the British Admiralty of the needs as of December 31, 1918, in case the war lasted that long. The requirements were set down to be 7,790,000 tons. The expected sources were Persia, 750,000 tons; Mexico, 600,000 tons; Trinidad, 180,000 tons; creosote, 180,000 tons; shale, 100,000 tons, and Borneo, 75,000. The United States was allocated 5,905,000 tons. Here you have some idea of the extent of the Allied dependence upon the American oil industry.

A vital change was worked in the American oil industry while we were at war. In fact a whole new principle was brought into play. It was coöperation in place of unrestricted competition for profit. In the face of overwhelming war demands, production was kept up and prices kept down. There is no more outstanding fact in the industrial history of the war period than the stabilization of prices for petroleum products at the time of an eager and crying demand for them. It was not only close coördination on the part of the oil industry with the government, but equally close coöperation within the industry. The oil business was the only great industrial enterprise dealing with a vital and necessary war product that the government did not take over, and fix prices. This tells the whole story.

The industry had to solve a delicate and intricate problem. The domestic requirements were huge. Fac-

tories, railroads, and ships consumed an ever-increasing supply of fuel oil. This demand was increased by the partial failure of the coal supply and the added burden thus placed on liquid fuel. The big factors that both the industry and the National Petroleum War Service Committee encountered were: first, that the use of petroleum products was increasing faster than the supply; second, that virtually every man in the business had three customers, each ready to bid against the other for whatever he could offer them. Despite these handicaps production increased and prices were not excessive.

The desired condition was brought about by what came to be known among oil men as "The Plan," which went into effect on August 9, 1918. It sought to accomplish two purposes: to stabilize the price paid for crude oil, and to maintain the continued and uninterrupted flow of crude oil in its former channels in so far as was practicable and just to the interests involved through voluntary action and coöperation of the industry itself.

The fundamental features of the plan were:

1. That the large purchasing companies should continue to purchase crude oil at posted market prices.

2. That all other purchasers then paying a premium for crude oil be permitted to pay certain stated premiums, they being substantially the same as those then in effect.

3. All contracts made for the diverging of crude oil from its existing channels, to be first submitted to Committees on Conciliation and Coöperation, created by the trade. These committees were made up of an equal number of purchasers and producers of crude oil and at least one, and not exceeding three, disinterested men of standing in the community. The actions of these committees were reported to the National Petroleum War Service Committee. In cases of dispute which the National Committee could not settle, matters were re-

ferred to the oil divisions of the United States Fuel Administration.

While this plan looked all right on paper, well-nigh insuperable difficulties at times attended its translation into action. The American oil industry proposed, and the German submarine disposed. The loss of large quantities of gasoline and fuel oil en route to Europe through successful undersea attacks, combined with the insatiable appetite of the Allied naval and military forces, made the question of adequate supplies sometimes a matter of touch and go. More than once the high authorities in France sat up anxiously far into the night with watches in hand waiting for word of another cargo of the indispensable motor power for tanks, trucks, aeroplanes, 'buses and other self-propelled vehicles of war. On this side of the water the National Petroleum War Service Committee controlled the movement of supplies much as a train dispatcher schedules freight and passenger service. Again and again a vessel destined for another port was caught by wireless and told to make all speed for Le Havre.

It means that no phase of the campaign of the National Petroleum War Service Committee was more vital than the stewardship and allocation of shipping. The mobilization of an adequate supply of petroleum products was in itself trying enough. Far more difficult was the task of keeping the tankers moving through the deadly perils of the deep.

The man behind the tanker was Walter C. Teagle who had been brought down from Toronto, where he was President of the Imperial Oil, Ltd., to take charge of the complicated work upon which so much of the fate of the Allied cause reposed. He was peculiarly fitted for the post. In his earlier day with the old Standard of New Jersey he had been Chairman of its famous Export Committee which distributed Standard products wherever the

trade winds blew. Reinforcing this was his long and varied experience abroad which brought him into intimate contact with British and Continental petroleum interests. When he took his desk as head of the petroleum war shipping he not only knew the requirements, but also the productive capacity of every Allied power. Brilliant as had been his performances prior to the World War, he achieved a new distinction for himself and for the industry with which he is so conspicuously associated, during those heart-breaking days when petroleum was about as valuable as life itself.

The Committee had before it estimates of the Allied requirements as well as a forecast of domestic consumption, and its problem was to get the maximum production from the American refineries. This would have been relatively simple had the industry been able to function in its regular manner. Confronted by the need for another five or ten million barrels of gasoline, additional cracking facilities would have been provided at refineries, and the required amount of gas oil and fuel oil withheld to be fractionated into gasoline. Unfortunately for any such plan, the demand for these two products was relatively as great as that for gasoline.

It became evident that the situation had to be met, not so much by increasing the output of gasoline, but by decreasing its unessential uses, thus freeing part of the supply for war needs. The National Petroleum War Service Committee discussed various means of bringing about gasoline conservation. One was the proposed system of rationing by card such as obtained in England and which gave a specified quantity of fuel to the motor-owner each week according to his occupation. Doctors had the preference. Another was to ask the government to direct a series of gasoline-less days in very much the same way that it had instigated fuel-less days during the

preceding winter. It led to an attempt to classify all automobiles and list their uses so as to restrict needless consumption. This was abandoned because the task was both huge and complicated.

The committee finally adopted what came to be a famous war-time institution. It was the so-called gasoline-less Sunday. The idea behind it was to prohibit the use of pleasure cars on Sunday, save where necessity dictated their employment. The committee approved of the proposition unanimously, the suggestion was passed on to Requa, and through him to Dr. Garfield and the President. Instead of making it a government order it was decided to make the action patriotic, and therefore voluntary.

The announcement met with an instant response and the first "gas-less Sunday," September 1, 1918, was marked by an almost complete cessation of joy-riding throughout the Eastern portion of the United States. This unwritten law applied east of the Mississippi River. The Mid-Continent refineries not only had ample stocks to take care of all demands in their territory but more to ship to the Eastern seaboard than the railroads could move. The quantity to be handled was limited by tank car equipment. Had this equipment been adequate to transport all the surplus Mid-Continent gasoline, the "gas-less Sunday" would have extended throughout the entire country.

Altogether there were eight gasoline-less Sundays. It is estimated that the gasoline thus conserved made it possible to provide all essential industries with supplies, and to load the equivalent of at least six tank steamers with cargo capacities of 60,000 barrels each.

One further detail in connection with American petroleum in the war remains to be presented. At the high tide of shipment under the control of the National

Petroleum War Service Committee the value of export aggregated $25,000,000 a month. Yet when the conflict ended the outstanding obligations of the Allies for oil then actually in transit did not exceed $500,000. This was due to the fact that there was no intention on the part of the committee to fasten any unnecessary obligation upon the Allies. Shipments were curtailed almost from the moment the Armistice negotiations were started. So admirable was the transport organization that it could be checked overnight. It is doubtful if any other major industry emerged from the war with so small an obligation due it from the various governments involved as did petroleum.

Such was the achievement of the American oil industry in the War of Wars. It carried out to the fullest and highest extent the principles of self-government. If any argument were needed to confute the pernicious idea of a government regulation of oil, it is to be found in the record that I have just set forth. At the beginning of our participation in the great conflict a veteran oil man expressed the hope that the business might get into the war "as is" and emerge "as was." His wish was gratified.

This inspiring story of coöperation did not end with peace. The experience born of war-time coördination was too valuable to lose and the machinery too useful to be scrapped. The industry had never before experienced even a semblance of organized national unity. The decision was therefore reached to perpetuate it in the form of the American Petroleum Institute which was organized in April, 1919, as a trade association dedicated to the service of the petroleum and allied activities.

The Institute is not an association of oil companies because a company, as such, is not eligible for membership. It is an organization of oil men residing in the United States, Canada, or Mexico.

The objects are:

To afford a means of coöperation with the Government in all matters of national concern;

To foster foreign and domestic trade in American petroleum products;

To develop in general the interests of the petroleum industry in all its branches;

To promote the mutual improvement of its members and the study of the arts and sciences connected with the petroleum industry.

The American Petroleum Institute provides a forum where the industry in all its branches can discuss the many problems that are constantly arising. Among its activities is a Foreign Relations Committee to which is delegated international matters affecting oil; a Standardization Committee created to pass upon recommendations for the standardization, simplification, and improvement of oil-field methods and equipment; a General Committee on Railroad Transportation which considers and determines the multitudinous questions in relation to the transport of oil products in tank cars, and various other special committees which deal with research, haulage by water, fire prevention, and kindred issues.

The general policies of the Institute are determined by the Board of Directors which is composed of fifty-two members. Production is represented on the board by twelve members; Manufacture by ten members; Distribution by seven members; Transportation by three members; Foreign Trade by three members; Supply by one member; Natural Gasoline by one member; and the industry At Large by fifteen members.

The headquarters of the Institute are at New York. The executive management of the Institute and its activities is directed by a General Secretary and an Assistant General Secretary. Departments of publicity and statis-

tics, taxation and accounting, transportation, technical research, and membership and finance are functioning. An office in charge of a special Pacific Coast representative is maintained at San Francisco. The Institute also has Washington representation which handles particular or specific matters which may be referred there.

In selecting its first president—and he has continued in office ever since—the Institute followed the precedent established when a man of the type of A. C. Bedford was made chairman of the National Petroleum War Service Committee. He is Thomas A. O'Donnell who began as a roustabout at an oil well and rose to be head of one of the most important of the California producing companies. In character and performance he represents the best that there is in the industry.

During the World War O'Donnell rendered a little-known service. It was all important that not only should the wells be kept going but that new fields be opened. Prior to our entry into the struggle and afterwards, munition factories offered alluring inducements to the oil workers to have more or less easy jobs and higher pay. O'Donnell kept these men on the petroleum job. He went from area to area preaching the gospel of the patriotism which is higher than material compensation.

The other officers of the American Petroleum Institute are: R. D. Benson, first vice-president; H. L. Doherty, second vice-president; J. W. Van Dyke, third vice-president; H. F. Sinclair, treasurer; R. L. Welch, general secretary and counsel; W. R. Boyd, Jr., assistant general secretary and counsel; Lacey Walker, assistant treasurer. The Executive Committee is composed of the following: E. C. Lufkin, E. L. Doheny, A. C. Bedford, W. N. Davis, J. Howard Pew, J. W. Van Dyke, H. F. Sinclair, Thos. A. O'Donnell, R. D. Benson, H. L. Doherty, and R. W. Stewart.

Thus the lesson of coöperation, learned in the World War, has not been lost upon the business of oil. In this cohesion lies the real hope of the industry. If it cannot regulate itself from within, the supervision must come from without.

CHAPTER XI

THE FAKE STOCK BUBBLE

A CERTAIN man once called on an old friend who happened to be head of one of the largest and most successful oil companies in the United States. After the usual greetings had been exchanged he said: "I want to ask your advice about buying some oil stock."

The petroleum executive pushed a button and whispered instructions to the secretary who entered. In a few minutes a large folder marked "confidential" was laid on his table. Opening it to a page showing many columns of figures, he said:

"On this sheet is the record of thirty wells that we drilled in a certain field. Twenty-eight were dry holes but the other two paid for all the rest and gave us a profit. From these figures you can see both the expense and the hazard that attach to oil production. Only a big company with immense assets such as ours can afford to take the risk."

"Shall I buy the stock I have in mind?" persisted the visitor.

"Why ask me?" replied his companion, "you had made up your mind before you entered the room."

In this episode you have the crux of the oil stock proposition. In the first place the game of oil finding is still a gamble despite all advance in geological research and scientific method of operation including deep drilling. Secondly, the seeking of advice by the average man before he puts his money into a petroleum security—it is often far from secure—remains a gesture, and nothing more.

This is why nearly everybody loses his first thousand dollars in an oil venture.

Once the gold mine held out the irresistible bait for the people's savings. Hence Mark Twain's maxim, "A mine is a hole in the ground in which a fool drops his cash." Today, despite the fate of the Doctor Cooks and the wiping out of more than a billion dollars in the last ten years in fradulent oil stocks—it is difficult to arrive at the exact losses because the suckers seldom squeal—John Jones pursues the phantom of the golden gusher that will make him rich overnight. He even buys stock in "guaranteed gushers" which only guarantee loss.

No chapter of the American oil narrative is more spectacular than this story of the fleecing of millions of people through fake securities. The victim is always fed up with dazzling accounts of fabulous fortunes made by the few. The public seldom hears of the failures of the many. In oil, as in all other speculative undertakings, the losses far outweigh the returns. So far as the layman is concerned "more money is put into the ground than ever comes out of it." The trouble with the stock promoter is that most of the money he garners never gets into the ground at all. It goes into his pockets.

There is nothing particularly new in this tragedy of loss in oil stock. From the era of "tulipomania" in the seventeenth century, when part of Western Europe went daft on the subject of tulips—the admiration for the flower was secondary to the craze for gambling in it—through John Law's Mississippi Bubble down to the latest Texas oil madness, speculation has fascinated the human being.

Yet a peculiar vengeance is visited upon the seducer of savings. John Law, for example, died in exile and poverty in an obscure Italian town, remote from the scenes of his temporary triumphs. So too, with the un-

scrupulous oil stock purveyor. Dr. Cook and many of his associates are in jail at Fort Worth with prison sentences ranging from one to fourteen years hanging over their heads. Thus it usually works out that the wiliest of these gentry almost invariably lose their ill-gotten gains and face a finish with prison or social ostracism as the only alternatives. Fate works slowly to invoke her remorseless decree but she usually gets there. This, however, is little satisfaction for the individual who has lost his hard-earned all.

As a preliminary, what might be called the fundamentals of oil operation are worth pointing out. Oil production at the high tide of a strike in a new field is always frenzied. There is a wild rush to the scene. All sense of values is lost in the grand scramble for leases. A sane perspective is therefore impossible. It naturally follows that oil finance is equally frenzied. It is a toss-up as to which of the two madnesses is the worst.

People apparently see oil only through a mist of money, as it were. They read that a poverty-stricken farmer, drudging from day to day to eke out a living, becomes a millionaire overnight because the most precious of all minerals is discovered on his once sterile land. They do not realize that this man is the exception; that for one farmer with a liquid gold mine under his feet there are millions who have only the good black earth, and not all of it is good and black. The accidental find, and the swift transformation of fortune that follows, stoke the furnaces of the hot-air stock promoter. He promises "repeaters" but they never repeat.

The second big basic fact is that the business of oil is not only one of the most uncertain, but also one of the most expensive of all activities. Nothing impressed me more on my trip to the oil domain of the United States than the immense increase in the cost of production. Back

in the early days of the industry in Pennsylvania you could put down a well with a spring-hole operated by hand, by horse-power, or even with a primitive steam outfit, for a thousand dollars. Today the wells in California cost from $100,000 to $325,000, and not all of them produce oil. The Standard of California, for example, drilled six dry holes at a cost of $1,483,333. This shows the hazard of the enterprise even when every possible resource that money, science, and equipment, can bring to it is employed.

One big well, of course, will compensate a company for many dry holes, but the point to be emphasized in this connection is the small chance that the promotion outfit with limited capital has in competition with huge, established, and going concerns. The public rarely pauses to reflect on this aspect. It is too intent upon trying to get something for nearly nothing. If the prospective speculator—all oil stocks are speculative—would ask himself the question: "What has this company done, and what is it financially able to do?" he would spare himself anxiety and worse.

Moreover if he would take the trouble to look up the vital statistics of the oil industry he would find that the immense sum of $9,250,000,000 represents the legitimate oil investment in the United States. It means that to make money in oil production you need a good deal of capital. Still more striking is the fact that during 1923, due to the immense over-production in California and Texas, the market value of all oil stocks traded in on the big exchanges and elsewhere—and these include the securities of great companies such as the Standard group and others—underwent a depreciation of nearly $2,000,000,000. The value of the common shares of the Standard companies shrank from $3,727,332,911 to $2,716,460,977, while those of the independents went from

$2,393,641,644 to $1,456,990,102. The Standard preferred stocks declined from $268,877,954 to $263,628,564 and the independents from $95,820,108 to $80,816,119. I use the figures of the American Petroleum Institute. Many of these stocks have come back to their former level but the significant feature is that even the strongest petroleum issues are subject to considerable change.

The finance of petroleum is like the industry itself in that it has distinctive features. Until the Teapot Dome investigation the industry left most of its publicity to the stock fakers and in consequence, the constructive fiscal aspect is not generally understood. As in every other activity that touches the public intimately, the security side has been abused by the unscrupulous promoters. Before going into the fradulent phases I will deal with the financing of the big companies whose issues are more or less standard investments.

The oil business has always been subject to periodic and extreme fluctuations and earnings, but at the same time to constant requirements for new capital to keep production and equipment ahead of the demand. Until a comparatively recent date most of the older companies were greatly undercapitalized. This was partly due to necessity, and partly due to the conservative business policies of the men who guided the industry in its early days.

When petroleum was in its second year, back in 1860, the price of crude oil fell from $20 to $2 a barrel, and in the third year from $1.90 to 10 cents a barrel. Wells had a habit of playing out unexpectedly and still have. Refineries caught fire and sometimes wiped out a company's entire investment. Lightning ignited storage tanks before men learnt how to subdue these fierce conflagrations. Cut-throat competition made the business appear more hazardous even than it was.

The result was that for many years the industry was in bad odor with bankers and investors. John D. Rockefeller has often told how he labored with companies which sold out to him to take Standard Oil Stock at par in payment, and how almost invariably the sellers insisted on cash. They did not believe in the permanency of oil. Thus refiners and producers could only borrow money at high rates of interest and it became a general practice to meet capital demands by the reinvestment of earnings.

These demands for new capital have been almost insatiable. On the eve of the government's dissolution of the old Standard Oil Trust in 1911, the total assets of the oil industry in the United States were $2,650,000,000. It was nearly a decade after the automobile had become an institution. Five years later the investment exceeded $4,000,000,000 and by the end of 1923 it had reached considerably more than $9,000,000,000. These figures are too large to mean anything by themselves, but the rate of increase affords an interesting measure of the task which the industry has had in providing itself with new money.

With the extraordinary expansion of the automobile, the business of petroleum began to concentrate on the consumption of fuel and lubricants by motor cars. This naturally stimulated the formation of new oil companies, most of which went into the security market for capital. Certain of these new companies entered into all branches of the business and obtained a national distribution of their products. As earnings increased, some of them declared stock dividends or offered new shares to their stockholders on such favorable terms as to insure their sale. The dissolution of the Standard trust by decree of the Supreme Court in 1911 fitted in with the opening of this new era in the oil business. Up to that time it can hardly be said that the industry had arrived.

There followed inevitably a realignment of the financial status of the older companies. They found it necessary to invest large sums in producing properties, refineries, pipe lines, tankers, and marketing facilities, to hold their own with the host of competitors springing up in their midst. The Standard Oil Company of New Jersey, for example, issued $200,000,000 of 7 per cent preferred stock. That this step was looked upon as taken to meet a more or less temporary situation was evidenced by the fact that the terms of the offer provided that this stock might be called at $115 a share three years after the date of the issue. Other companies followed suit. In part at least, this need for new capital might still have been met out of current earnings but for the serious inroads made by the corporation income tax.

Throughout their entire history the various Standard companies have paid dividends that netted the shareholder as a rule less than bond interest on the actual value of his holdings. These companies could have paid three or four times as much money out in dividends had the management elected to distribute all of the profits instead of reinvesting the larger part of them in the further development of the business. This money belonged to the investors who owned the stocks and represented an additional investment on their part when it was employed by the company in the acquisition of additional properties. The market value of the different Standard Oil stocks reflected this understanding.

One consequence of this policy was to make the price of many of these oil stocks so high as to remove them from the investment market except for people of means. Three years ago, the Standard of New Jersey, prompted also by the desire to provide stock for subscription by its employees, decided to give its shareholders certificates representing the money which had been reinvested in the busi-

ness for their account. To that end, the par value of the stock was reduced from $100 to $25 and the capital increased to permit the issuance of a 400 per cent stock dividend. Contrary to a rather common impression, this stock dividend meant no monetary advantage to the shareholders except as it gave them a wider market in which to dispose of their holdings.

From the corporation standpoint, this new departure also had the advantage of relieving the embarrassment incident to the glaring disparity between the outstanding stock and net assets, which led the public to believe that earnings from the business were abnormally high. Of course the stock market correctly appraised the situation by dividing the price of the old stock by five to arrive at an estimate of the value of the new $25 certificates. Several other Standard companies followed suit, both by increasing the amount of their capitalization to permit of the issuance of stock dividends, and by reducing the par value to make the shares better adapted to investment.

What has been true of the Standard companies is also true of such well-managed organizations as the Gulf, Texas, Shell, Union, Pacific, General, and other kindred oil corporations. In such companies stock is issued against existing assets and proved earning power. This state of affairs does not exist among the promoting companies who have taken such vast toll of the people's savings. We can now resume the narrative of oil stock swindling.

With oil stock, as with many other things, the fool rushes in where the experienced investor fears to tread. There is a curious and infectious germ about this matter of becoming involved in fake petroleum "securities." At the outset, a man buys a few promotion shares because of the extravagant claims made for an alleged "property." With this performance his name gets on a so-called

sucker-list. Before long he begins to receive glowing literature from other companies, and his financial decline and fall commences. The traffic in names is one of the features of fleecing. Sometimes the principal asset of a discredited organization is its roster of victims which can always be sold to some kindred group of grafters. The victims are considered as legitimate prey for everybody in the game.

After the clean-up of the sharks at Fort Worth a sucker-list was found which contained exactly 2,000,000 names. Every individual on it had been trimmed once, and in most instances, many times. One reason is, that having failed on the first excursion into the fancied domain of easy wealth, the universal instinct to retrieve on the second asserts itself. The process then becomes a vicious circle. The real viciousness is on the part of the crooks who penalize public credulity.

Oil speculation began with the opening up of the first field on Oil Creek and along the Allegheny in Pennsylvania in 1859. From its birth the industry seems to have been destined to some kind of inflation. Its very inception bore the earmarks of present-day promotion. As most people know, the pioneer oil well was drilled by E. L. Drake. What they do not know is that although the amount originally subscribed was only $3000, the company was capitalized for $500,000. To heighten the analogy Drake himself was not a driller but a railway conductor. Although he delivered the goods he was the forerunner of the variegated line of human beings that later masqueraded as oil promoters.

The first oil gambling was in actual petroleum. There were no organized storage facilities. The price of the crude ranged sometimes from 50 cents to $15 a barrel during the course of twelve months. In consequence, there were frequent corners and much profiteering.

Transportation facilities were so inadequate that there was even speculation in whether the product reached the Atlantic seaboard. Oil was conveyed in barrels and the element of theft, often inspired by the gamblers themselves, entered into the procedure, and contributed to the hazard.

In those pioneer days of the industry people flocked to the new El Dorado in Pennsylvania with its equally new brand of flowing wealth. The butcher, the barber, and the baker, who became lease magnates overnight, some of them only owning 1/200th of an interest in a five-acre lease and often less, had their prototypes later on at Spindletop, Ranger, Burkburnett, and Smackover.

It means that what might be termed the cycles of gullibility in American oil are all definitely marked in the historical sense. Each epoch began with a discovery of a new field and is labeled with the name of the locality. The curious commentary on this succession of speculative events is that no one appears to have profited by the preceding performance.

The first nation-wide orgy of oil stock gambling came when Spindletop, in Texas, was brought in during January, 1901. The Pennsylvania excitement that followed the Drake well in the early sixties was practically confined to the Atlantic seaboard. Pittsburgh was the capital of the frenzy, although many of the oil corners were pulled off in New York.

The Lucas gusher at Spindletop, the first to spatter American soil, put the petroleum bug into the American system, and it has been there ever since. Spindletop will serve to illustrate another important fact in oil promotion and production that should convey a deep lesson for everyone. In any big new petroleum field two things invariably happen. The output of the greatest of gushers is a fleeting thing. The doom-note is sounded from the moment the oil begins to appear. No other mineral

presents such a spectacle of transitory life. A coal or a copper mine may have an almost indefinite life and the owners know exactly what they have, because the product can be blocked out. Not so with oil. It is fugitive, migratory, and cannot be renewed.

The point I want to make here, however, is that the promoter seldom, if ever, gets in on the real productive proposition. He skirts the fringes. Sometimes he does not even get that far with his leases. Nor does he acquaint his clients, if they can be dignified by this term, with the elusiveness of oil. His principal job, and it is well worth repeating, is to capitalize the achievement of the actual producers. One of the Fort Worth companies whose officers are now in jail sold $10,000,000 in stock on a lease that covered 125 unproductive acres and which had cost precisely $600. Yet this area was held up to the suckers as being "capable of reproducing Ranger and Burkburnett."

The second fact is that in all large fields the really valuable properties fall almost immediately into the hands of the big companies who have no interest in stock promotion and whose sole objective is the production of oil. One of the most conspicuous examples is the Powell field of Texas, which is all big acreage, which means that there are comparatively few leases, each covering a large area. The stock of these companies is outside the range of the pikers who buy 50-cent and $1 shares.

This leads to a statement not without value and significance for the oil-stock purchaser. There are three kinds of oil companies. One is organized to make money out of stock. Another is to sell oil. The third is to do both. If you are going to buy oil shares be sure to enquire if your company is principally concerned with stock or with oil. If stock is the incentive you will be wise to keep your hands off.

To resume the chronology of speculation, after Spindletop came the Kansas oil-stock brainstorm which took toll of a considerable part of the country. While she happens to be one of the greatest of oil-producing States, Oklahoma, curiously enough, had no emotional speculation period at the dawn of her oil day, or since. The development in the main has been sane and orderly. This explains why Tulsa has enjoyed such a steady development. She is a conspicuous example of what a legitimate oil expansion can do for a community.

The peak of oil-stock speculation was reached in Northern Texas following the bringing in of the Ranger and Burkburnett fields. It led to what was perhaps the greatest oil swindle in the history of the business. Fort Worth became the capital of a promotion programme that extended to every State and even beyond the confines of the United States. There will be more about this later on. I refer to it here as it fits into the consecutive narrative. Almost coincident with the North Texas orgy was the era that centered about the Smackover field in Arkansas and where the "guaranteed gusher" was added to the lures held out.

The most recent excitement followed the discovery of the three bonanza fields in Los Angeles Basin—Huntington Beach, Signal Hill, and Santa Fé Springs—which put California temporarily into the sisterhood of frenzied oil commonwealths with Los Angeles as the capital of the offensive. While the losses here did not begin to approach those inspired by the Northern Texas orgy, the setting, as well as the procedure, were probably the most original and picturesque of all similar companies.

Although there is much ground to cover in this chapter, a paragraph about these California happenings is necessary. It was a high-pressure proposition—a sort of direct promoter-to-victim scheme. The managers avoided using

the mails to the extent employed in Northern Texas although the newspaper campaign was a marvel of persuasive fluency. In the actual solicitation evangelistic methods, that at times approached Southern camp-meeting tactics, proved highly successful.

Prospective buyers were mobilized in the heart of Los Angeles and given free automobile rides in rubber-neck wagons to the oil fields where there was a free cold lunch. The cold lunch invariably preceded the cold deal that was almost invariably handed out. There were impassioned lectures by hired spielers, some of them preachers who had left their pulpits to get the $500 a week that was given for this service. These sales in the open were admirably stage-managed for there was always a dramatic moment when a driller in oil-spattered overalls appeared on the platform and whispered to the speaker that "oil was in sight." Other exhibits were geologists who spoke a language that no one in the audience understood. Finally the impresario himself made his appearance, putting the final kick into the appeal. As elsewhere, most of the promotion properties were outside the proven areas, that is, places where oil was actually being produced.

It was in the Los Angeles field that the unit system of attracting money to petroleum ventures practically had its birth. Instead of buying a straight share—promotion oil stocks are anything but straight—the speculator obtains a unit in a property. It is something like a security with no par value. If oil is discovered the holder of the unit gets a sum fixed by the promoters. The price of these units varies as is the case with the share.

This seems to be as good a place as any to dispose of another detail in connection with oil-stock selling. In the old days a share was the usual evidence of ownership in a petroleum company. With the bringing in of new fields came various innovations. The unit system which

I have just described is only one. Then there is the syndicate plan in which the general public has no chance to be fleeced, but which enlists a small hand-picked group.

When you analyze human nature with particular reference to money—and it is always the acid test—you find that when entry into an enterprise, however doubtful or speculative, is "sold" as a special favor, or is made difficult, the victim falls with extraordinary ease. He even struggles to get the chance to lose his wad. Hence the use of the phrase "limited opportunity" in so much oil-stock literature.

In some of the syndicate schemes the promoters lease a large piece of land and divide it into small sections for development. If oil is found on one of these plots the underwriters get a share of the proceeds. Then they discover that all the adjacent blocks are kept for the exclusive use of the insiders. If the well happens to be on the edge of the original space developed, it is almost certain that the adjoining ones are oil-bearing. In these the "associates" never get a look-in.

The merger plan which reached the last—or rather worst—degree of exploitation under the promoters who gathered at Forth Worth, consists of the consolidation of many fake companies for the purpose of "loading" and "re-loading" the victims with more stocks. The fresh bait is the fact that a new deal has been made which, according to the gilded promises held out, will not only salvage the money lost in the old companies but afford a "grand opportunity" to emerge with a big profit. This performance is usually carried out under a so-called "trust agreement"—it is sometimes termed a "trust estate," which gives the manipulator immunity from corporate liability. You will presently see in detail how this scheme works out.

Whether it is the share, the unit, or the merger propo-

sition, one thing is certain. By any other name the game of organized oil-stock graft remains the same menace to the people's money—a rainbow bubble bound to burst.

It is, of course, impossible to deal concretely with every epoch of American oil-stock madness. Since the North Central Texas excitement, which centered at Forth Worth, was the most elaborate of all the frenzies, and furthermore because it led to the conviction of the largest group of promoters yet brought to judgment, I will employ it as the principal illustration. Here the offensive reeked with every trimming—I use the word advisedly—that crafty and devilish ingenuity could devise.

I have already said that nearly every big oil-strike leads to a promotion-stock campaign. It followed that when the Ranger and Burkburnett fields were opened up, Fort Worth, which was of easy access to both, became the rallying point geographically for the sharpers. Being a community of considerable size it afforded every facility, so far as banks and office space were concerned, for the organization of a huge stock-selling movement. It was soon the capital of the most widely extended oil swindle yet known.

The movement did not get under full swing until 1919 when Burkburnett struck its stride. Here, as at Ranger, the big companies and many honest individuals were producing oil, and the areas had become part of a larger American petroleum expansion. But in oil, as in everything else, there is always abuse. Although their leases were invariably many miles from the actual producing centers, the unscrupulous promoters used pictures of the going wells in their literature and advertisements so ingeniously that the stock buyers thought they were acquiring interests in real production. This is the usual procedure.

Being so near to Ranger and Burkburnett, it was inevitable that Fort Worth should seethe with enthusiasm

over oil. Even before the mobilization of promoters got under way, practically every other citizen was interested in some way in oil. Bootblacks, truck drivers, chauffeurs, cooks, and housemaids put their savings into interests in leases. When the avalanche of stock offerings began they were an easy prey because they were already infected with the oil germ. If the stock flotations had been confined to Fort Worth the number of victims would have been comparatively small. This, unhappily, was not the case. The whole country was drawn into the web.

To Fort Worth there came the horde of promoters who caught this high tide of oil emotion at the flood. They had a selling-point in the fact that Ranger and Burkburnett had made good. The news of the two strikes had been heralded throughout the country. John Jones, whether in Maine, Oregon, Florida or New Mexico, knew from his newspaper that North Central Texas was the new oil realm and he fell for any solicitation, however exaggerated, that was linked with it.

Chief among these capitalizers of credulity who set up shop at Fort Worth was Doctor F. A. Cook. He arrived from Wyoming where his fortunes had fallen to a low ebb. It was prophetic of his fate—and I speak out of a one-time professional contact with him—that his speech was oily and his manner persuasive. Through his "conquests" of Mt. McKinley and the North Pole, which, as most people are aware, had been repudiated, he was an international—if notorious—figure.

In this world of ours the sensation of one day is usually the dim reminiscence, or is even forgotten, the next. Hence when Cook launched his stock-selling schemes, most people still knew him as an individual who once held the spotlight, and there were even some who believed he had been persecuted. Nearly every circular advertising a Cook scheme carried with it an impassioned defense

of the man himself. In the haste for easy money the average person is not discriminating. The net result was that what Cook promised was accepted as gospel by tens of thousands of people.

Cook's first undertaking at Forth Worth was the Texas Eagle Oil Company which operated hypothetically in the Desdemona field. After a precarious existence during which he was able to live for a year on the proceeds of stock sales, the company went on the rocks. Cook found himself up against it, a state of affairs, or rather lack of affairs, with which he was familiar. The characteristic feature of this initial Cook venture was that although he sold $1,500,000 in stock throughout the country he had nothing to show for it. It confirms the fact that the ill-gotten gain seldom sticks.

Cook's sole remaining asset, aside from his nerve and plausibility, was the list of victims in the Texas Eagle Oil Company. He sold this to the Revere Oil Company for $6000. The Revere crowd merged 110 decrepit promotion companies into one master unit, and before its promoters landed in jail had taken in $35,000,000 in sums ranging from $2 to $1000. Their scheme will serve to explain the merger game.

The Revere annexation of Cook's stock list was merely one of many similar purchases. The idea behind this, as well as all the other mergers, was to get as many names as possible. Once his or her name was secured—and there were as many women as men involved in the gamble, some of them Gold Star mothers who mortgaged their pensions—the victim received a letter which usually contained this sentence: "We have been fortunate enough to include your company into our monster merger. We will save you from the losses you have already sustained by this merger of assets." Of course there were no assets to merge. They were just so much junk and hot air.

The plan was to levy a 25 per cent assessment on the stockholders who came into the new deal and then make an additional assessment of 25 per cent "for contingent expenses." Most of this new money was velvet because the first assessment more than paid the comparatively trifling price paid for the stock lists. As I have already intimated, the majority of the mergers were made under a form of common Law Trust Agreement which, curiously enough, had its origin in Massachusetts and which contained many "safety first" clauses. Here is a specimen:

"No trustee shall be personally liable on any accounts, claims, or demands, or for any torts arising out of the conduct of the business or incident thereto of this Trust Estate to anyone whomsoever, it being expressly agreed and understood that all persons whomsoever shall look to the property and assets of the Trust Estate for the satisfaction of their claims and demands, whether contractual or otherwise, and not to the Trustee personally. If the Trustees shall be required to pay any sum of money on account of any act of theirs made in good faith in the performance of their duties as Trustees, they shall be indemnified therefor out of the said Trust Estate, and their claim for indemnity shall take precedence and priority over any other claims against said Trust fund save and except lien creditors."

Invariably under these trust agreements all the assets were conveyed in trust to three persons who were always the promoters themselves. You have seen how they were immune from any financial claim. Thus they were enabled to go the limit so far as extravagant claims were concerned. One of the usual steps in the merger game was to declare a salted dividend paid out of principal, which provided an irresistible bait for the old victims to buy stock in the new combine. They fell over themselves doing so.

The Revere stock brokers and solicitors—and there were many in various parts of the country—were given books of blank stock certificates which they could fill out at will and at any old price. Although the stock was quoted in the advertisements at $1.50 a share it was marked down in house-to-house campaigns for as little as 11 cents. The Revere "properties" comprised a small group of rusty tanks and shacks. In cunningly doctored photographs they appeared with the background of a forest of wells. As a matter of fact, in most of the mergers, as well as in the single promotion companies, the only assets were postage stamps, typewriters, and sucker-lists.

Having briefly explained the merger proposition, we can resume the story of the rise and fall of Doctor Cook. The sale of his list of Texas Eagle stockholders—all they ever got was a chance to hold the stock—not only gave him a stake but an idea. He said to himself: "If others can work this merger game so can I."

He therefore organized the Petroleum Producers' Association under a declaration of trust that not only gave him the usual corporate immunity but declared that "in consideration of the services of F. A. Cook the founder of this organization, and as a further and continued consideration for his services as founder of this Trust Estate, it is mutually agreed that he shall receive in lieu of all other compensation one-eighth of all gross funds received from every source." You will observe that his take-out is on the gross, which means that he got a crack at everything that came in.

The only actual assets of the Petroleum Producers' Association at the outset, and the equity upon which the Trust Agreement was based, was 120 acres of land in La Salle county, Texas, which was not only non-oil-bearing but which had been purchased for $600. This represented all the cash put into the business, except for advertising

and the office expenses of operation. One reason why the merger promotors were able to fleece so many suckers was that, as Cook's trust agreement read, "other valuable properties have been examined and negotiated for * * * and other assets will be acquired later on." In other words all development was in the future, so much so that it never materialized. But the suckers fell for the promises.

With the Petroleum Producers' Association, Cook, who made himself president of the outfit, launched what was undoubtedly the most pretentious fradulent stock-selling campaign ever waged. At the full flush of his business he employed eighty-five stenographers and occupied two whole floors in a large office building. From them issued a steady stream of literature that was reminiscent of the most florid circus advertising.

He had little difficulty in persuading the stockholders in the various merged companies to come in. Most of them, already defunct, had a so-called "trustee" for the victims. This trustee immediately became a Cook tool and wrote to the stockholders in this wise: "If we do not enter Petroleum Producers' Association or some other combination of this kind, it will be necessary to launch a new campaign to finance the purchase of new properties and the drilling of some wells. Since this is a very difficult task at present, I strongly recommend the merger as above outlined." On the strength of this "advice" thousands were willing to throw more good money after bad.

The chief of Cook's literary department was S. E. J. Cox, glib of tongue and pen. He had previously been indicted for the fraudulent use of the mails in an oil promotion at Dallas but had been clever enough to wiggle out. The fact that he had escaped from the meshes of the law not only gave him prestige of a certain kind, but heartened all the other promoters to renewed effort.

Although it is anticipating results, let me say here that ultimately Cox got his, because he is now serving a sentence at Leavenworth. The association with Cook proved to be his undoing.

Altogether Cook merged 413 companies. Of these, exactly thirteen only had the first semblance of assets, and these assets consisted principally of dry holes. It is not surprising that Cook should have been able to harness 413 companies because at that time 2700 corporations or syndicates of one kind or another were corralling money out of oil stocks in Texas. All but 600 had their offices in Forth Worth. Most of the remainder did business from Houston.

Cook was a wizard at letter writing. With him, as with all other oil sharks, the personal appeal was a strong point in selling. Endless communications were addressed "From your President" to "Dear Stockholder." Although it is a sad commentary on human nature, "Dear Stockholder" fell for the bunk.

I have before me as I write a series of follow-up letters signed by Cook to one of his woman victims in Birmingham, Alabama. They are all originals and were given to me by Henry Zweifel, the United States District Attorney at Forth Worth, who successfully prosecuted the oil grafters. They formed one of the exhibits in the case against Cook. Because they are typical, and may also possibly serve as a warning for the future, I shall produce some extracts from them.

Apparently this particular woman in Birmingham had invested in one of the merged companies prior to its annexation by Cook, was unable to pay the twenty-five per cent assessment levied because of straitened circumstances, and had written in to say so. Her case was ideal material for Cook to work on. He wrote her a three-page personal letter urging her to "make every sacrifice"

to "salvage" her "investment." He dilated upon the possibilities for the future, saying: "I desire to direct your particular attention to the fact that we have more than 100 producing oil wells, have several more under process of drilling, all of which are confined to exclusively proven territories. Our success can be measured in a very large way and our next dividend will be the largest that has ever been paid out of the City of Forth Worth." The truth was that he did not have a single producing well and the dividend to which he refers was a salted one, paid out of the principal.

In this letter Cook made reference to his Arctic experiences in a piece of sentimental drool that is a classic of its kind. It is so amusing—at the same time I have not the slightest doubt that it really "sold" the victim—that I am reproducing it in full as follows:

"After wandering away carrying a venturesome thought but made up of good-will to all men, as far as the Arctic on the cold, bleak hills around the North Pole, back to the wind's sweet seas, and into the noisome pestilence of the tropics, I learned a lesson that all men and women were made up of humanity. Appreciating that our sojourn in this world is but of a short duration, and from this world we glide into another, I have become fully appreciative of real good folks. In my declining years, my desire is to bring about, or cause to bring, happiness, pleasure, luxuries, and the things they love best. The bitter experiences and the cold knocks you have endured, as well as the confidence you have exhibited, brings upon my shoulders the responsibility of securing real results for you, and with your coöperation, I will."

On the strength of this appeal, and like thousands of her sister dupes, the woman made still another sacrifice as is shown by a similar letter from Cook acknowledging the receipt of $3 to be applied as first payment on a subscription for 100 shares in the Petroleum Producers' Association. Not satisfied with having wrung this pitiful sum Cook sent a follow-up communication reading like this:

"I want to deeply thank you for your coöperation and may God bless you and yours. I shall strive to my utmost to send you a record-breaker dividend before long.

"The Association has the assets. Measures will be taken to cause you no regret in taking the position you have. An opportunity of magnitude will pass you by, perhaps never to return, if you fail to increase your holdings. A coupon is enclosed with advice to get your dollars to work where they will yield a return."

This letter is characteristic in every sense, because Cook, like all his ilk, was constantly invoking God's name in his undertakings. It also shows that no sum was too small to be extorted. Everything that came in, from a postage stamp up, was grist to the graft mill. The concrete case that I have described could be duplicated ten thousand times.

Despicable as was the Cook campaign it was matched —even surpassed in some respects—by the operations of the General Lee Interests, as they were known. Here you have a capitalization of good name on the one hand, and of gullibility on the other. The master-minds of this enterprise were Charles Sherwin and Harry Schwarz.

They turned up in Fort Worth with a joint ambition to clean up in oil in the easiest and most effective manner. They saw Cook getting away with the goods so they thought they would go him one better. Texas is still strong in Confederate sentiment. In fact there are people there who still think that the Civil War has not been finished, and, like the boy in the well-known Southern story, believe that "damned-Yankee" is one word.

Sherwin and Schwarz knew that the name Lee was one to conjure with in the South, so they decided to hitch their promotion wagon to it. In Fort Worth they discovered an unassuming old man named Robert A. Lee, who had formerly been employed as janitor in the State

House at Boise at $50 a month. At the moment janitorships were scarce and he was living with relatives. He claimed a distant relationship with Robert E. Lee, the famous Southern soldier.

This was all that Sherwin and Schwarz needed. They rescued the old man from obscurity and made him the central figure of the General Lee Development Interests. Immediately they dubbed him "General" Robert A. Lee. He had no direct interest in the company but lent his name at precisely the same wage that he had received as janitor.

If you take a look at the literature of the General Lee Interests you will immediately assume—as thousands of victims did—that Lee was not only the favorite relative of the great Confederate chieftain but that he had also devoted his life to geological research. He was referred to as "The Miracle Man of Geology." I doubt if he had ever seen an oil well until his name was drafted for stock-selling purposes.

The most incriminating feature of this Lee campaign was the incessant abuse of the great Lee traditions. Nothing was too sacred to be perverted. Many well-known men have lent their names to a questionable enterprise but this was probably the first time that the integrity of a whole family was prostituted.

One of the choicest samples of the Sherwin-Schwarz dope was a booklet entitled "The Honor of the Lees." In it the whole kindling story of the Lees from "Light-Horse Harry" of Revolutionary fame down to Robert E., and Fitzhugh Lee, was told. The infamy of the procedure was that the deeds of these illustrious men were tied up with the Lee stool-pigeon in a stock-selling game. As an argument to buy stock in the General Lee Interests this paragraph was used in "The Honor of the Lees":

"The Lees have kept the faith. The Lees have remained steadfast to the same high purpose which has marked their lives from the

very birth of this nation. It has never been said of a Lee that he violated a confidence or broke a faith. The honor of the Lees has remained untarnished through the centuries. A name to inspire and thrill; a name to denote all that is high-minded and good in life; a name that has yet to bring the blush of shame to the cheek of any man or woman."

Every appeal to stockholders from the General Lee Interests was signed by Robert A. Lee, often with the prefix "Gen.," and contained a reference to "my illustrious ancestor General Robert E. Lee." Incredible as it may seem, many, in the South especially, believed that the man who signed these communications was the famous soldier himself. This was because Robert A. Lee said in one of his circulars: "I would rather lead you and a thousand others to financial independence than to have won Fredericksburg or Chancellorsville."

When Sherwin, Schwarz and Lee were brought to trial one of the victims related that, after purchasing $20 worth of stock in the company—the par value was one dollar—she received a letter from "General" Lee thanking her for her confidence in him and asking her to buy more stock. She also told that in one letter "General" Lee had said that his motto was "Do unto others first." The experience of the company proved that its motto really was "*Do* others first."

Another letter to the same woman enclosed a signed photograph of the "General," who said it was sent in a "true spirit of friendship." I refer to these Lee letters because one of the most effective agencies in any fraudulent stock campaign is what advertising experts call the "direct personal appeal." As the Cook exhibit showed they seem to pull the harder when they drip with sob-stuff.

The General Lee Interests cleaned up more than a quarter of a million dollars in actual cash before the bubble burst. Sherwin and Schwarz got ten years each with

$15,000 fines for good measure. "General" Robert A. Lee was given two years in prison and fined $6000. The trio will have ample opportunity for the study of American history without interruption.

From the merger scheme and the type of imposition represented by the capitalization of the Lee name, we now pass to a different brand of seduction labeled "the guaranteed dividend." The most notorious perpetrator was the Bucher Smackover Trust, organized and developed by H. S. Bucher. It presents some new kinks in the promotion process.

Where the Dr. Cooks bore down heavily on what had been accomplished by legitimate producers in the North Texas field, Bucher cunningly employed the Smackover area in Arkansas, although his hot-air machine functioned at Forth Worth. Various gushers had been brought in at Smackover so Bucher, to whom the truth offered no handicap whatever, began to "guarantee gushers" for his victims. In addition, his literature also "guaranteed a 700 per cent cash dividend."

For exploitation purposes this dividend was divided into four installments of 150 per cent with an "extra" of 100 per cent. At the outset of his undertaking, and when he only had a few stockholders, Bucher declared and paid an actual 150 per cent dividend, which amounted to very little. It was the usual salted payment out of principal. As always happens in such cases it proved to be the bait that lured thousands into the scheme. This followed because in all his advertising matter Bucher stated: "On February 1, when my Trust was but a few weeks old I declared and paid 150 per cent cash dividend to the brave little army of investors who rallied around me in the pioneer days of my enterprise."

What the eternal stock victim, whether in oil or otherwise, never comprehends is the misuse of the word in-

vestor. An investment is an undertaking in which you put out your money to work in an honest enterprise that actually produces something commercial. Investment is the exact opposite of speculation, but few stop to make this distinction.

With the second dividend of 150 per cent Bucher inaugurated a scheme as cunning as it was malicious for separating people from their assets. Instead of sending the checks to the stockholders by mail he distributed them among unscrupulous brokers and agents. The agents took the checks in person to the stockholder with this statement:

"Here is your Smackover Trust dividend check but it is folly for you to accept it. Mr. Bucher"—here again you have the personal element—"has been generous enough to allot you a thousand shares"—or whatever amount was agreed upon—"in his new capitalization. Of course if you don't want it you must sign a waiver giving the stock to some one else who is eager to have it."

The inevitable thing happened. By making the new stock allotment a "special favor," and further by giving it the atmosphere of a legal transaction through the waiver, the stockholder not only applied his dividend to the new deal but often dug up more money. If the dividend check did not cover the new subscription, and it seldom did, the solicitor said: "If you have no ready cash you can give us securities."

The result was that thousands of people handed over Liberty Bonds and other really good holdings in exchange and as they believed, in trust, for worthless pieces of lithographed paper. In doing so the victim had to sign a document which turned out to be a bill authorizing the Bucher crowd to sell the securities received. Thus the Smackover Trust not only saved all the second dividend money but, using it as a come-on, harvested much more.

Bucher's publicity was a marvel of appeal. Like Cook he was a champion letter-writer, employing the words and phrases that always hit the bull's-eye. His mythical wells were all named Success. As the stock operations widened these were designated by numbers such as Success No. 1 and so on. He created a scheme of so-called "Beneficial Interests" which sold at $1 each and were supposed to represent a special share of the profits.

Bucher also put over another misrepresentation. Part of his literature consisted of phony newspapers which were nothing more or less than promotion programmes. They were filled with articles which told of the marvelous production of Smackover Trust properties. Interspersed were occasional news items about the general oil situation. The public which received the sheets believed that they were legitimate oil journals. The use of these papers eventually got Bucher in bad because the postal authorities were able to land him on account of them. His fate was like all the rest. The enterprise collapsed and Bucher himself was sentenced to a year and a day in prison, and was fined $5000.

I could continue this list of companies almost indefinitely. The feature of the Forth Worth offensive was that it created a new school of trickery and deception. It was a wild hectic era and the whole community was infected. At lunch-time shop girls discussed their oil-stock purchases just as they talked about engagements with men. They were merely symbols of the hundreds and thousands throughout the land who were doing likewise. Money poured in so fast on the promoters that they made wagers among themselves on the daily returns. Heads and purses were alike inflated. But Nemesis was at hand. The finish came, and in this wise.

In the United States District Attorney's office on the ground floor of the old red post-office building in Fort

Worth sat a brawny man, with curly black hair, searching eyes, and a fighting face. His name was Henry Zweifel and he was a two-fisted go-getter. Fate had evidently marked him for the task that was now to be his.

Born on a farm in Hood County, Texas, he had earned his first real money as boiler-maker in the oil fields. In this capacity he ranged all the way from Beaumont to Kansas. Out in the open Zweifel learned the oil business literally from under the ground up. He was not the type to be content to remain a worker with his hands so he became interested in politics and Roosevelt appointed him postmaster at Granbury. Always ambitious, he studied law at night at Granbury College and was admitted to the bar when he was twenty-eight. Most of his clients were oil men and his knowledge of the game was increased through the litigation end. In 1921 he was appointed United States District Attorney for the Northern district of Texas, which embraces one-third of the State, and is the largest of its kind in the whole country.

When Zweifel assumed his Federal post the oil-stock campaign was well under way. He knew that it was vile, but no complaints came to him for the immemorial reason that the victim of speculation seldom admits his losses. However he began to study the situation. It was not until the summer of 1923 that he asked the Attorney General at Washington for permission to prosecute what had become the biggest oil swindle ever known. He called specific attention to the merger proposition which was landing most of the cash. He further asked for special assistance. Washington told him to go as far as he liked, and half a dozen Department of Justice agents were sent down to his aid.

Zweifel's first step was to get so-called "fraud orders" which prevented the promotion companies from receiving their mail. It meant that all letters addressed, for exam-

ple, to the Petroleum Producers' Association, were sent to his office instead. Out of the mail of this company alone he salvaged $77,000 in a single week. In three weeks $359,000 were taken over out of the mail of the Revere crowd. During the first six weeks of the operation of the fraud orders a total of $750,000 was saved for the credulous people who had sent it to Fort Worth. This was not a patch, however, on the larger loss because the Fort Worth oil gang bagged not less than $250,000,000. This is the estimate of the Associated Advertising Clubs of the World which assisted effectively in the anti-stock-shark campaign both in California and in Texas.

Zweifel's task was far from easy. To begin with, the oil crooks had plenty of money and fought him at every turn. Secondly, at the start sentiment generally in Fort Worth was against him. A certain section among the business men feared that the prosecutions would "hurt the boom" that had come to the community with the stock-promotion campaign. It is only fair to say that once the housecleaning began, the United States District Attorney got one hundred per cent coöperation from the citizens. Today Fort Worth is purged of the powers that preyed, and has begun a fresh era of expansion.

The fraud orders really marked the beginning of the end. Zweifel assembled his evidence before the Federal Grand Jury and one by one the men who had made rapacity a fine art were indicted. On November 21, 1923, the 104 defendants got theirs. I have already indicated the degree of punishment meted out to some of them.

The central figure on that day of days was Doctor Cook. In sentencing him to fourteen years and nine months in prison, and fining him $12,000, Judge John M. Killits delivered what was probably the most terrific indictment ever administered to a man in an American court room. My great regret is that space limitation

prevents its reproduction in full. The opening blast will serve to indicate the character of the arraignment. The Judge said:

"Cook, this is one of the times when your peculiar and persuasive hypnotic personality fails you. You have at last got to the point where you cannot bunco anybody. First we had Ananias. Then we had Machiavelli. The twentieth century produced Frederick A. Cook."

The carnival of convictions at Fort Worth was duplicated on a smaller scale at Houston. The central figure was Cox, the same individual who had been Cook's handy literary man. In Houston he helped to promote the Blue Bird Oil Corporation, a merger. Maeterlinck conceived the blue bird as the symbol of happiness. With Cox and his confederates it spelled loss for thousands of investors, but likewise retribution for the miscreants who traded on the original significance.

I was in Houston when Cox was sentenced to five years in prison, and to pay a fine of $15,000. George E. Peddy, the special United States Attorney designated to prosecute the oil fraud cases there, told me an amusing story about him. Just before Cox was arraigned for sentence his attorney asked if it were possible to send him to Leavenworth instead of Atlanta. When asked the reason the Judge received this reply:

"Cox is afraid to go to Atlanta because he sold one of the wardens there a block of fake stock." He was sent to Leavenworth.

Cox, by the way, is unique among his kind. Just as he administered the double-cross to so many stock victims, so did he receive a double dose of justice. In addition to the sentence and the fine imposed at Houston he also got eight years and a fine of $8000 for his work with Cook at Fort Worth. The sentences are to run concurrently. Hence he will only have eight years to serve.

One of Cox's associates, Butler Perryman, who was also fined and imprisoned, created what are said to be the two masterpieces of promotion literature. In these Perryman reversed the usual order because he arraigned the stock sharks for swindling the public. One of these classics was entitled "The Meanest Man in the World" and contained this paragraph:

"The man who would take your money to develop a big idea—his idea—and then put that money in his pocket, or a large portion of it, instead of using it for the development of the proposition in which you were buying stock, is my idea of the meanest man in the world."

The other and more damning document which lured thousands to financial ruin was entitled "Do Not Risk the Loss of Your Home. Buy it First." Ostensibly it argued that every person should save up and purchase his own home. In reality it made the point that ordinary saving was too slow a process and that oil stock offered the opportunity to get the nest egg quickly. These two circulars rose like avengers at Perryman's trial and contributed largely to his undoing.

In every tragedy there is usually some element of humor. So it was with the Houston stock promotion cases. One of the defendants was Henry H. Hoffman, who conducted an elaborate stock-selling scheme through the mail. In exploiting his first company he advertised a drilling campaign so incessantly that to save his face he had to put down a well. To his great surprise he got oil. He was unable to realize on it himself because he had disposed of every share. The strike served its purpose with him because he based every succeeding promotion on it. Hoffman got two years in prison and was fined $5000.

In this succession of Texas episodes you have one of the all-too-many cycles embodied within the larger span of human weaknesses. For years the unscrupulous stock

promoter has taken his toll regardless of the laws and the morals he infringed. The public continues to be duped despite the constant warnings held out. The final query therefore is: "Does anybody ever learn readily from experience when it comes to chasing the rainbow of easy wealth?"

Apparently not. The best that the chronicler of events can do is to keep plugging away, trusting that eventually the instinct of thrift and reason will prevail to safeguard the people's savings.

CHAPTER XII

THE FUTURE OF PETROLEUM

After much wandering, during which we have ranged from the bonanza fields of California, by way of Oklahoma, to the Coastal plain of Texas, we now come to the final turn in this survey of the American business of oil. It is marked by the all-important signboard that points to the future.

No other industry has undergone such a mighty transformation. We have seen how crude production has grown from 2,000 barrels a year in 1859 to 725,000,000 barrels which was the record yield of 1923. We have shown how method in transportation has evolved from the barrel hoisted to wagon or barge to the network of 60,000 miles of pipe line, to 125,000 tank cars, and to fleets of tankers that traverse the Seven Seas. We have observed the growth of the legitimate investment from a few thousands of dollars until it has nearly reached ten billions. We have beheld how gasoline, once the rejected by-product of refining, and destroyed to make way for the then more valuable kerosene, has become indispensable to trade and transport, with an annual output that has increased from 8,000,000 barrels to 190,000,000 barrels in less than two decades. We have witnessed the fuel transition in which oil has lowered the pride of coal and menaced the prestige of steam. Summed up, we have learned that to stem the flood of petroleum means to paralyze power and progress from farm to factory.

What are the vital problems that confront this superactivity so essential to the upkeep of the human and com-

mercial machine? Will its tomorrow be as useful and expansive as its today? How is oil to be conserved or substituted so that future generations may continue to employ it to conquer the air, descend into the deep, drive cars, ships, and locomotives; in short, to stoke alike the furnaces of war and peace? These, and much more, are the gifts of petroleum to the humming age that works fast and travels faster. Yet the speed at which we move and have our productive well-being is matched by the miracle of the petroleum advance. What is its ultimate objective, and what are the possibilities of price, refining, and production?

Just as all signs fail in dry weather so do all estimates, to say nothing of forecasts concerning petroleum, go by the board. Uncertainty claims the industry. It begins with the elusiveness of the crude product itself and extends to nearly every phase. Hence the difficulty in reaching any definite conclusion about the future. As a matter of fact the only sure thing about petroleum, in some respects, is its past.

Take the vital matter of reserves. With coal, iron, and copper, the mine-owner not only knows precisely where he stands but can block out his holdings so as to meet impending demand and supply. Not so with oil. Feast and famine alternate because the conditions that attend drilling can not be standardized. Adjoining wells drain each other and the result is the frenzied competition which inevitably leads to over-supply. Moreover just as soon as consumption and production are about to meet, a new pool may be discovered and the flood of petroleum begins all over again. The look ahead is necessarily fraught with hazard.

Nearly every prediction made about petroleum has been in error. In 1921 one of the best-known American oil statisticians declared that our domestic output would

be at its peak when 470,000,000 barrels were garnered. Most observers agreed with him. Yet 1922 produced 557,000 000 barrels, while 1923 surpassed this record by 168,000,000 barrels.

I can illustrate the sudden and unexpected changes encountered by petroleum executives with an experience of one of the Standard companies. After mature deliberation this corporation placed an order with a shipbuilding concern for a large tanker which was to be employed to carry excess Mexican crude through the Panama Canal to refineries in California where, at that time, the local supply of crude was short of requirements. When the tanker was completed, less than two years later, its first cargo consisted of part of the new flood of over-production in California which it conveyed to Mexico so that the refineries there might not be obliged to shut down for lack of raw material. Conditions had exactly reversed themselves while the ship was under construction.

As recently as November, 1923, the American oil industry was placing a daily average of 374,000 barrels of all inventories; that is, crude, refined, and semi-refined, into storage. By the end of January according to the Bureau of Mines figures the surplus of petroleum products was only 5840 barrels a day.

During the autumn of 1923 it was calculated that unless some new big flush fields were discovered, production and consumption would balance about May or June of this year. As I write, which is at the end of March, 1924, the government figures for January show that, due to increasing demand on the one hand, and declining crude production—mainly the latter—on the other, the period of balance will be reached in five months.

The figures for California production—and I use them because the output there upset the whole petroleum situation in 1923—are another evidence of the instability of oil

statistics. In September, 1923, the California output was exactly 100 per cent in excess of Pacific Coast demands. It led to a vast movement of crude to the Atlantic Seaboard with the inevitable demoralization of prices. At the end of March, 1924, this excess had dwindled to 30 per cent. Before the end of the year it will probably just meet the normal Pacific Coast requirements.

To round out the uncertainty which attends all petroleum computations you must know that whereas the American consumption in January, 1923, was 1,847,000 barrels a day, the corresponding figure for the same month in 1924 was 2,092,000 barrels a day, an increase of 13 per cent. Now you can see why this task of trying to analyze the oil future is well-nigh impossible. It is like dealing with quicksilver. The job, however, must be attempted.

Let us begin with the most basic of all aspects of the problem which is the potential crude supply. Here you have as many conflicting opinions as there are diagnoses among doctors called in for consultation in a major medical case.

The generally accepted geological estimate is that the entire remaining recoverable petroleum resource within the United States is about 9,000,000,000 barrels, which at the present rate of output—last year we produced exactly 72.7 per cent of the whole world's output of crude—would last us a scant fifteen years. Of this supply 1,340,000,000 barrels are believed to be in Oklahoma, 1,850,000,000 barrels in California, and 2,100,000,000 barrels in the Gulf Coast, Texas, and Louisiana fields. Of course there is always the likelihood of opening up a new area but the geologists believe that they have combed practically all the potential oil fields in the country.

The point of view exactly opposite is that of the hard-headed practical oil man who says: "We have always found more oil and always will." This type, representa-

tive of the school which began in Pennsylvania and West Virginia, proclaims that when the country needs more oil and will pay the price the industry will find it.

If you consider that the annual production of the United States has increased from less than 200,000,000 barrels a year to more than 700,000,000 barrels in the last fifteen years, the contention of the practical man seems reasonably well supported by recent experience. Further inspection of the record reveals evidence less compatible with the idea that we can forever go on increasing production merely by drilling more wells.

Out of a total of 90,000 wells drilled during the first third of this fifteen-year period in search of oil and gas, 15,000 were dry holes or failures. At that stage of the industry, little was known of the science of oil-finding. Petroleum geology was in its infancy and none of the delicate instruments for detecting underground conditions favorable for petroleum accumulation in advance of drilling had been developed. The wildcatter simply went out and drilled where fancy, hunch, expediency, or some other consideration, not concerned with chances of finding oil, dictated.

During the next five years geology began to have an influence. Many impossible areas were eliminated and drilling was confined more closely to favorable geologic structure in natural petroleum provinces. In spite of these precautions, the record shows no improvement. On the contrary, out of 111,000 wells drilled, 22,000 were dry holes.

During the past five years, with all the stimulus of increased demand, with record-making high prices over part of the period, with the almost universal utilization of an intense nation-wide geologic study, with preliminary testing by core-drill and by infinitely sensitive mechanical devices, and with the accumulated experience of all

Photo copyright by the Standard Oil Company of California

AN AMERICAN TANKER IN THE PANAMA CANAL

previous oil-finding efforts, 30,000 dry holes resulted out of a total of 130,000 wells drilled. Our dry-hole ratio has increased from one in six, through one in five, to nearly one in four.

That science and past experience have combined to increase the efficiency in finding oil is shown by the fact that the average initial production for each oil well drilled during the first of these five-year periods, was 55 barrels, the second period 100 barrels, and, during the last five years, 218 barrels. We have developed more and better oil fields, but the hazard and cost of exploration have steadily mounted for the reason that they lie at greater depths, and are less readily evident from surface indications.

Linked with this problematical future supply is the constantly growing consumption of petroleum products in which the average annual increase over the past four years has been over 15 per cent. We use a larger quantity of oil than all the other peoples combined. During 1923 the per capita consumption in the United States was 5.26 barrels, as compared with .18 consumption per capita for the balance of the world. At the 15 per cent yearly rate of increase our consumption for 1929 would be nearly 1,500,000,000 barrels or double that of 1923, a volume of oil which not even the most optimistic producer expects to supply. The great question therefore is: how and where are we to get our future oil? This is the crux of the whole business.

Analyze our phenomenal increase in the absorption of petroleum products and you find that with a greater degree of development in refining, combined with the natural readjustments in the use of petroleum by-products due to knowledge and experience, the demand for crude oil will probably not be as great as these figures indicate. Let us examine the facts.

Gasoline, kerosene, lubricants, fuel oil, and gas oil are the petroleum products most in demand. Of these, kerosene, except as it replaces gasoline as motor fuel, has already assumed a position of declining importance. Electricity has largely superseded it as an illuminant throughout the country. While more than 50 per cent of our oil was run to kerosene in 1900, only 10 per cent of today's production is converted into kerosene. We therefore do not need more oil to make kerosene.

The consumption of gas oil, which is used for the manufacture of the artificial gas used in the home for cooking and heating, has been important for some years, and is increasing. So-called water-gas, suitable for household use, can be made, however, from steam, coal, or coke without any mixture of gas oil. With the mounting cost of gas oil, which can more profitably be converted into gasoline through the cracking process, which will be described later on, the use of gas oil for gas manufacturing will rapidly become less common, and may eventually cease entirely.

On the other hand, there are no substitutes in quantities for lubricating oils. Their use, when compared with that of gasoline and fuel oil, is not large. In 1923, the gasoline consumption was ten times larger, and fuel oil fifteen times greater than that of lubricants. The question of meeting future requirements for lubricants presents no difficult problem.

The disturbing element in the petroleum forecast is gasoline. Our 15,000,000 automobiles do not present the point of saturation by any means, for we are manufacturing more and more cars all the time. Last year we consumed, with exports, all but 2,000,000 of the 190,000,000 barrels of gasoline that we produced. If we cannot maintain our present rate of crude production, what is to feed this monster motor maw? An eminent petroleum statis-

tician recently declared that at the present ratio of increase, our gasoline requirements for 1930 will be 17,000,000,000 gallons—approximately 400,000,000 barrels—or nearly two-and-a-half times our consumption in 1923.

The advance in the use of fuel oil has been almost at the same pace. In times of over-production, the industry has had no other alternative than to push the sale of fuel oil as the quickest way to obtain the necessary increased outlet for the excess supply. During such flush periods, millions of barrels of refinable crude have been topped—that is the naphtha content extracted—and the balance sold as fuel at a price below the cost of coal. This has resulted in the building up of an enormous business for fuel oil.

Until a few years ago, and outside the navies of the great powers, an oil-fueled ship was almost unknown. Even in 1920, less than 20 per cent of the world's shipping burned oil. Today nearly all the new tonnage being constructed is equipped to burn oil. The United States Shipping Board fleet will illustrate. At the close of 1923, exactly 351 of its vessels, or 85 per cent, were oil fueled.

The quantity of oil required by large ships is little short of astounding. On a round trip across the Atlantic the giant *Leviathan* consumes 68,000 barrels of oil. Now consider the source of this fuel. There are exactly 285,000 wells in the United States with a total daily output of a little more than 2,000,000 barrels or an average of 7 barrels. Thus it would require the daily output of the average oil well at the present rate of production for the next twenty-five years to fuel the Leviathan for each turnaround.

Yet despite the limits, whatever they may be, of the oil reserve, and the amazing and growing increase in the consumption of petroleum products, the industry faces the future confident of its ability to meet whatever emer-

gency may arise. Nor is this assurance born of the chronic optimism which seems to be the birthright of the American oil man. Fundamentally, the fate of petroleum, with the varied activities that it endows, seems to rest upon economy and science—the combination that has redeemed many an economic hope.

Far more potent even than economy and science is the force that will adjust what the psycho-analysts would call the petroleum complex. It lies in that inexorable arbiter which is price. When fuel oil, for example, becomes more expensive than coal, the black diamond will come back to its own.

Since we have started off with production basis of the industry, it may be well to round out the chapter. What first strikes the layman in an appraisal of petroleum,—and I speak out of my own experience—is what seems to be the apparent disorganization that attends output. The periodic shortage and over-production naturally give the impression that the business is either grossly mismanaged or grossly manipulated.

Neither of these indictments stands in the very nature of the industry. Petroleum, as I have frequently pointed out, is the most elusive and migratory of minerals. Oil, like big game, belongs to the person who captures it. There is no closed season, however. The few pessimists in petroleum argue that just as we wiped out the buffalo on the western plains, so must oil eventually be eliminated in the frenzied hunt for it.

While a well may be capped, as the phrase goes, after it begins to flow, there is always the hazard that the initial production will not be resumed once it is reopened. Policy dictates that every gallon of oil must be garnered while the going is good. It is worth repeating that adjacent wells drain each other. This accounts for the competitive town-lot drilling which invariably leads to economic waste.

Behind all this is the fact that the oil producer must deal with human nature as expressed in the perfectly natural desire of the landowner to get all he possibly can out of oil in the shortest available time. He gets royalty on that oil.

The most conspicuous recent example of this economic waste is at Signal Hill in the Los Angeles Basin where wells are drilled on adjoining town lots, some of them not more than 120 feet square. Here you have costly duplication of effort and a demoralizing flood of oil which had to be disposed of outside its logical geographical market area. Since much of this excess production cannot be stored because storage is expensive and oil depreciates when confined, a huge quantity of the product, after the gasoline had been removed, was sold as fuel oil instead of being refined for the many by-products which have greater commercial value. It is estimated that the three bonanza pools in Southern California will cause the industry an ultimate loss of approximately $500,000,000 because of unnecessary drilling, shrinkage of price due to excess supply, and dissipation of gas pressure.

In the face of these facts the layman raises the question —why cannot production be stabilized so as to prevent the recurrent feasts and famines, and at the same time bring about some degree of standardization of price?

This is easier said than done and for a variety of reasons. To begin with, stabilization demands coöperation among producers and the anti-trust laws of the United States set up a definite bar to this procedure. It would be construed as conspiracy. The one conspicuous example of coördination for a common purpose came during the war when stern necessity dictated the temporary scrapping of all anti-conspiracy statutes.

The suggestion has been made in some quarters that all likely oil domains be blocked out for exploration pur-

poses to determine the extent of their resources for conservation, and to establish definite reserves such as obtain in those areas allocated to the navy. A second is to discourage drilling of more wells than are necessary to take the oil out of the ground and to meet contemporary needs.

These remedies necessitate Federal legislation which would bring petroleum dangerously near to government control, a state of affairs which no one in the industry, and few outside, desire. Our experience has proved that Uncle Sam in business is probably the most unbusinesslike individual in the world. Besides, by almost unanimous consent, Federal sponsorship of oil would stifle the initiative which has made American oil not only synonymous with enterprise, but the agency for more than two-thirds of the world output and with it ninety per cent of the technical advance.

Hence our native production must continue its more or less haphazard way. Whether that 9,000,000,000-barrel reserve exists or not, the American oil man has already taken out an insurance against the failure of the home supply by entering foreign fields. We are producing oil in Mexico and South America, Rumania, and, to a very limited extent in the Dutch Indies. The so-called American Group, including some of the leading Standard companies and the most powerful independents, have a fourth interest in the Turkish Petroleum Company which has the concession for the potential oil fields of Mesopotamia. An American company also has, or thinks it has, the right to operate in the four northern provinces of Persia.

Whether American companies will continue to have access to these essential foreign fields rests upon the lap of our government gods. One reason why the British and the Dutch oil interests have corralled so much of the known recoverable oil areas outside the United States—

the Dutch have even gotten their hooks into our fields—is because they have one hundred per cent support from their governments. In the specific case of the Royal Dutch-Shell group, progress has not been due so much to the superior generalship on the part of Sir Henri Deterding as to the freedom he has enjoyed from legislative restriction against combination to operate abroad. He has been able to organize any number of subsidiary companies in different parts of the world, including the United States, without fear of running afoul of a Sherman Act. In addition to this freedom from the limitations which have hedged American companies, he has enjoyed both the financial and physical support of the Dutch and British Governments in furthering his projects.

Instead of encouraging the American oil man overseas, our government has usually done the opposite. The British and Dutch Foreign Offices anticipate oil opportunities while Washington holds post-mortems. Not only does the American Government usually trail in the world procession to secure raw materials or trade opportunities for our people, but in the specific case of oil it contemplates a serious handicap. This is embodied in the suggested embargo on the export of petroleum and its products.

The result of such an embargo in times of peace would be that other countries possessing petroleum resources would adopt similar punitive measures. In addition, our claims to participation in the newly discovered foreign oil fields, such as Mesopotamia, would be removed. This would be a natural procedure because the knowledge that the United States, the world's greatest petroleum producer, deemed such a drastic step necessary, would arouse the instinct of self-preservation in other nations, and America would suffer in the recoil. Apparently it has not soaked into the consciousness of legislators and the public that we not only produce more than two-thirds of the

world's supply of crude oil, but what is of even greater importance, that we are by far the largest consumers.

Examine the facts about imports and exports and you readily see that despite the mighty flow of our petroleum, we need foreign crude and will probably continue to need it in increasing quantities, save in such an unusual period of over-production as obtained in 1923. The best basis of calculation would be the figures for 1922 which was a normal year so far as production is concerned. We will take gasoline, the product which most affects the average person. From imported crude and naphtha we extracted 14,812,654 barrels. We exported 13,740,000 barrels, leaving us 1,072,544 barrels, or approximately 45,000,000 gallons to the good by the transaction. This shows that the gasoline obtained from imports was 10 per cent of the total production in the United States compared with exports of 9 per cent.

Before we leave production another possible means of enhancing crude recovery through efficiency of operation can be disclosed. It is estimated that from 50 to 90 per cent of the average oil pool remains in the ground after all the wells have ceased to produce. How can it be salvaged?

Some day we shall go down into the oil sands that have been exhausted so far as the producing well can be operated, and recover part of the remaining petroleum through mine shafts and galleries, as is being done in some parts of Europe. An alternative—and it is in use in the older fields of New York and Pennsylvania—is to pump compressed air or water down an abandoned well in one part of a depleted field in order to set up a flood which will spread radially through the oil sand, driving the remaining oil ahead of it toward surrounding wells through which it can escape to the surface.

In connection with a foreign supply of oil for our con-

sumption is an interesting speculation which concerns the future of the American industry. What would happen if America were bereft of an appreciable part of her crude oil resources? I can best answer in the words of one of the most constructive of our oil leaders to whom I put this question. He said:

"If the source of a considerable part of the American people's crude oil requirements be transferred from domestic to foreign fields the American petroleum machine can go into reverse without much more effort than throwing out the clutch. It was built to do that.

"The trunk pipe lines from the interior to Atlantic and Gulf ports will carry crude as cheaply to the interior as away from it. Should the American producing field be changed into a consuming market, the problem of supplying the refineries dependent upon it would present no great difficulties, and the cost need not necessarily be much higher. Once afloat and in large bulk, crude oil can be transported in tankers at a surprisingly cheap rate as compared with any other method. The big tankers, of from ten thousand to twenty thousand tons, with which the industry has equipped itself and which are now engaged in the movement of crude oil from California and Gulf ports to various seaboard refinery points, could be used for the movement of crude from, say a Mediterranean port, which would be the terminus of a pipe line from Mesopotamia, at a lower cost than is now incurred in moving crude through the Panama Canal from California to a North Atlantic port. The longer the water route the cheaper the cost per ton-mile. It is as feasible to bring crude by water from foreign fields to be refined in the Atlantic, Gulf, or Pacific Coast refineries, exporting the surplus, as to refine the crude at the point of origin, and be under the necessity of exporting all of the variety of finished products derived from it.

"The American petroleum industry has an enormous investment in transportation facilities and refinery capacity in this country, a considerable portion of which would be a scrap but for the industry's foreign trade. In addition to this it has a large investment in marketing and distributing organizations all over the world. Given access to foreign producing fields, the industry could protect American consumers of petroleum products against danger of shortages and hold and increase its foreign trade. It would not matter in what remote corner of the globe the fields were situated if American tankers could tap them. Diminution of our native crude supply would not in the slightest degree mean the impairment of America's position as the greatest petroleum exporting country of the world."

In consequence you need no diagram to point that, whether we have a ten, fifteen, or twenty-year supply of petroleum in the ground, a foreign source of crude is essential, not only to the maintenance of our monster motor machine but to keep the wheels of productivity whirring. The latter would stand idle if its lubrication depended on the fish-oil and animal fats as was the case before the great era of petroleum refining.

With the word refining we come to the phase of petroleum which represents much of the hope of the future. It means that if our consumption exceeds the supply available from both foreign and domestic sources, prices will rise to the point where two principal tendencies will become effective in maintaining a balance. These tendencies are: first, increased efficiency in the utilization of the crude; second, the development of oil products and substitutes from sources other than petroleum.

The average man who fills the gasoline tank of his car at a service station does not realize that the fuel that speeds him on his way represents an interesting evolution.

He is apt to suppose—if he supposes at all—that crude petroleum is dumped into a big still, heated up, and the result is his much-needed juice.

In the early refineries the process was almost as simple as this because the raw material was vaporized in cast-iron vessels cased with bricks out of which the vapors were passed off to a copper worm, cooled with water. There was no salvage of the full content of the crude. Kerosene was the only commercial product of refining, and the much-desired and widely-used gasoline of today was either burned as waste, or allowed to run into adjoining creeks.

With the coming of the automobile, gasoline took on a new value and effort was concentrated on its extraction. Yet as recently as 1909 only four gallons of gasoline were produced from a 42-gallon barrel of crude. This proved to be inadequate because of the growing demand for motor fuel. Some means had to be devised to increase the gasoline recovery.

It arrived in the shape of the cracking process which, in the simplest terms, means the forcing out of the crude of a larger quantity of gasoline through heat and pressure. Cracking today yields from 40 to 45 gallons of gasoline out of every 100 gallons of crude, and the other valuable by-products are also obtained. Where gasoline is the only objective 75 gallons can be, and have been, produced from 100 gallons of crude.

When the crude supply shrinks there must be a more intensive refining so as to obtain a correspondingly larger amount of gasoline. It means, of course, that kerosene and fuel oil which, with gasoline, comprise the three major products of ordinary refining, will be produced in much smaller quantities. We have seen how kerosene is a constantly dwindling factor in our life. The puzzle therefore is with fuel oil. Before we get through you will see that it is not such an enigma after all.

At this point, and in order to understand subsequent statements, it may be well to say that gasoline today is obtained in three ways. One is the straight distillation of crude from which the bulk of supply is obtained. It is called topping, because literally the top distillate, gasoline, being the lightest, is removed. The second is from cracking operations. Third is the compression or absorption of the gasoline vapors out of the gas that escapes from oil wells. The gasoline is squeezed or scrubbed out of the gas. This is called casing-head or natural gasoline. Through this little-known and recently-developed agency 22,000,000 barrels of gasoline were obtained last year, a quantity equal to the total gasoline production in 1913.

These facts are incidental to the larger problem. It lies in the wasteful consumption of fuel oil. You comprehend it when I say that exactly one-half of all the crude produced in this country, after the gasoline and kerosene have been removed, goes as fuel to be burned under boilers. This fifty per cent contains the hundreds of commercially valuable by-products including lubricants. They merely go up the flue.

This extravagant performance can be emphasized in another and more homely way. If all our hogs were slaughtered merely to obtain pork chops and ham and the remainder burned up, it would duplicate what is going on in the waste of crude oil. I say waste, because, while the fuel oil generates power, it could be converted into products more valuable in a larger way. The same amount of steam-making could be obtained from the more abundant coal and no impairment wrought to productivity or progress.

The task of the future, therefore, is to utilize the oil produced in order to obtain from it adequate supplies of those products for which there are no available substitutes. When this is achieved, shrinkage in the crude sup-

ply will work no hardship, because one barrel will be made to do the work of four or five.

There is nothing particularly new in this idea. Back in 1915, Franklin K. Lane, when he was Secretary of the Interior, in speaking of petroleum, said: "An absolute government would prohibit a barrel of it being used for fuel before every drop of kerosene, gasoline, and other valuable constituents have been taken from it."

Up to the present time it has not been necessary to reach this stage of complete utilization of petroleum because the production of crude has been more than sufficient to meet all requirements, including its uneconomic use as fuel oil.

To understand the fuel oil problem it is important to know that there are four main uses of petroleum as fuel. Gasoline propels the automotive engine; refined oil or kerosene is used in the ordinary illuminating lamp; the lighter distillate oils are employed in the Diesel engine, and residual oils as fuel are burned under boilers for power purposes.

In times of over-production and because of the excessive cost involved in storing it in large quantities—in California during 1923, $47,000,000 was spent on new storage—much crude is sold as fuel in direct competition with coal. This is wasteful as petroleum is much too valuable a product to be burned when the more abundant coal is available. During these periods of over-production the industry has no other alternative than to exert every energy to further the sale of fuel oil to obtain an outlet for the surplus.

With these facts in mind you can appreciate the argument advanced by the oil conservers that should there be a material falling off in the production of petroleum, the public at large would suffer no inconvenience or annoyance through the substitution of coal for the fuel oil now

being used for the generation of power afloat and ashore. They point to the fact that there are but few places in which heavy oils are used as fuel where coal cannot be used as a substitute.

As soon as the selling price of fuel oil is higher than that of coal—and this is altogether likely at no distant date unless new pools are discovered—there will be a conversion from oil to coal with a corresponding reduction in the consumption of the heavier oil products. The fuel oil so released will be available for conversion into products of higher value. In this way the increasing demand for gasoline can be met, provided that the price of gasoline is such as to make the conversion profitable and to justify further investment in cracking facilities.

Whereas coal can readily supersede fuel oil in most instances, a corresponding substitution for gasoline is much more difficult. Up to the present time the cost of producing gasoline has been materially below that of manufacturing alcohol, benzol, and like substitutes in large quantities.

Analyze the figures for petroleum for 1923 and you get some inkling of the extent of the fuel oil business, which also measures the extent of the waste in petroleum. Out of our total production of 725,000,000 barrels, exactly 317,000,000 barrels, or 43.5 per cent, was disposed of as liquid fuel for power purposes and refinery fuel at a price below its fuel value as compared with coal. In other words, coal could have performed the work of this oil, and thus have made available a bigger percentage of the more valuable petroleum products including gasoline.

Using an average yield of 40 per cent from cracking, it follows that if the demand for gasoline has existed in 1923 and the price justified it, by cracking the 317,000,000 barrels of heavy oils burned as fuel, we could have produced an additional 126,800,000 barrels of gasoline and

still have had left a residue of 190,200,000 barrels to be sold for power purposes.

The question naturally arises—does this procedure, that is, the burning of so much heavy oil under boilers, conserve our national resources or utilize them to the fullest economic value? Obviously it does not.

No matter how high the price of petroleum products may go, fuel oil will be in demand and use. It is likely that as fuel oil becomes more expensive it will be used in internal combustion engines of the Diesel type where a much larger portion of its potential energy can be transformed into useful work. An illuminating example of the possible economy came under my observation in Texas.

A pipe-line engineer replaced a temporary steam pump at a small pumping station with the permanent Diesel engine pumps which the plans specified. The steam plant with fuel oil burned under boilers had consumed 150 barrels of fuel oil a day. The Diesel engine installation did the same work on only twelve barrels.

The same application can be made for marine power. One of the vice-presidents of the Emergency Fleet Corporation has stated that a vessel with a Diesel motor power plant in which the fuel oil is burned in the engine cylinder itself, just as gasoline is burned in the cylinder of an automobile, will travel three times as far as the same ship operating on the identical quantity of fuel oil burned under the boilers for steam generation.

In other words, a Diesel-motored ship will use only one-third as much fuel oil as the ordinary oil-fired, steam-power ship of the same size and design. Of 351 oil-burning vessels operated by the United States Shipping Board in 1923, only one was equipped with Diesel motors. If all the Shipping Board vessels had been equipped with Diesel motors, as they probably will be when fuel oil becomes really scarce and valuable, their fuel consumption would

have been only one-third what it actually was. Our fuel-oil consumption, instead of expanding indefinitely as more ships are built or converted to oil fuel, will probably decline from its present volume, just as our gasoline absorption will shrink, once prices become high enough to make economy imperative.

Waste pursues petroleum wherever the fuel item crops up. Nowhere is it more evident than with the motor car.

As oil men see it, the sole reason why fuel economies have not already come into practice is that gasoline has been too cheap to make them worth while. There has been no sufficient incentive to the automobile manufacturer to make for fuel conservation. It is because Americans, alone of all the great nations of the world, are power-mad. The British, French and Italians, get much more mileage out of their cars than we do. As one observer put it to me:

"The heavy luxurious high-powered car is the present demand of the public, let gasoline consumption be what it may. Whenever gasoline becomes scarce enough to be expensive the public will demand fuel economies in automobile design. When this cry goes up they will obtain it. Even cars already in use can be adapted by special devices to secure a multiplied fuel efficiency. For the manufacturer there will be the expense of changes in design; for the driver the necessity for more frequent gear-shifting on country roads. With these will come a gasoline economy which will permit our nation to run all the automobiles it can ever need on less fuel than it uses today."

We have seen how fuel economy can conserve the crude supply and act as an antidote against shortage. Its full, and even larger mate in constructive endeavor, is science. The laboratory, which Pasteur called "the temple of the future," constitutes one hope of the oil tomorrow.

Although we have been prodigal in the consumption of our natural resources—in none more so than with petroleum—we have not begun to feel the pinch of scarcity in them which has been manifest in other countries. It stands to reason, however, that just as our forests have dwindled before the axe, so will other kindred raw materials melt away. The chemist must not only utilize what remains, but also provide substitutes. Chemistry and conservation are closely allied.

Just as the average citizen is unaware of what happens in the evolution of crude into the gasoline that he uses every day, so is he ignorant of the incessant research which may eventually cheapen the price of that fuel. The chemistry of petroleum is an established science and the laboratory has come to be an essential adjunct of every big petroleum organization.

The advent of science into the industry was not easy. The pioneers, untutored men that they were, who followed hunches in locating wells, resented anything that savored of the academic. Geology, for example, which is now an established first-aid in petroleum finding, and which has materially reduced the hazard of the dry hole, was opposed for years by the old guard.

So, too, with research. Thirty years ago, when the first chemist joined the ranks of an oil company he had to camouflage his identity for a time. There seemed no reason for his existence.

Today the petroleum chemist is a necessity. As an evidence of how far he can travel in the business I have only to cite the case of Dr. William M. Burton, whose name is intimately associated with the development of the cracking process. He entered the laboratory of the Standard Oil Company of Indiana as an obscure scientist. Now he is president of the company.

The first serious chemical problem in petroleum came

almost without warning when what was known as the Lima oil in Ohio was discovered. This oil, at the outset, could only be used for fuel purposes on account of its high sulphur content which invested it with a skunk odor. The Pennsylvania fields had begun to decline and it was imperative that the Ohio crude be utilized for other purposes than fuel. At that time our oil domain had not expanded to its present nation-wide proportions.

The task of making this Ohio crude suitable for refining was solved by Herman Frasch, a chemist, who found that the sulphur and the vile smell could be removed by heating the oils with copper oxide during the process of distillation. Frasch's discovery saved the Ohio field and increased the value of the oil seven-fold.

The second imperative need of chemistry in petroleum developed with the coming of the automobile. Refining processes were not able to keep pace with the demand for gasoline and research was concentrated on extracting a larger motor-fuel content. The cracking operation was one result.

Chemistry's objective is to increase the supply of gasoline; to obtain that supply at the minimum cost and to get every ounce of service, as it were, out of the petroleum by-products. The greater the number of valuable by-products that are obtained and utilized, the lower will be the eventual price of gasoline.

The moment you enter the field of petroleum by-products you become involved in a technical and equally bewildering maze. Up to the present time there are more than five hundred of these products, and the majority have some practical use. Not only must every by-product be utilized but some of them are so new that markets must be created for them.

Nearly every day yields some new derivative of petroleum refining which will eventually find a place in the

scheme of practical things. Sometimes these findings are as unexpected as they are commercially useful. In the manufacture of a certain special oil product it was discovered during the process that one of the wastes, that had formerly been thrown away, was more valuable than the oil itself. The company now has both the oil and the one-time waste product.

As I write I have before me a chart showing some of the petroleum by-products obtained in a great American refinery. Although they do not begin to cover the whole field to date, they number one hundred and sixty-five. This particular chart is nearly five feet high and nearly three feet wide. To include all the by-products that have some use in industry or commerce would require a diagram three times the size. The by-products on the chart I am using as an illustration range from every conceivable kind of lubricant to gas-black used for rubber tires, ink, and paint.

From one of the alcohols, itself a by-product, is obtained a substitute for fusel oil. This oil has a peculiar and timely significance. Before the Volstead Act all our fusel oil, which is used as a solvent in the manufacture of films, was derived from alcoholic distillation. With the passing, or rather the alleged passing, of liquor, some new source had to be devised. It was found in a petroleum by-product. Unhappily for those who thirst, the chemistry of petroleum has not yet produced an adequate hooch, nor is it likely to find one.

There is every reason to believe that the chemistry of petroleum is at the threshold of its career. In the test tubes and retorts of the laboratories may lurk, for instance, the formula for the synthetic gasoline which would solve part of the vexing problem of crude supply.

The Germans, always in the van of scientific research, claim to have discovered a substitute for gasoline in

synthol. It is the work of Professor Franz Fischer, former director of the Institute for Coal Research at Mülheim, and a Dr. Trosch. Synthol is a volatile oil derived from coal, coke, or half-coke, and is practically free from hydrocarbons. In tests it is said to be superior to benzol. Like most synthetic products it must be further improved to make it fully adapted to commercial purposes.

This reference to the Germans brings to mind a legend, widely current among oil refiners, that a Leipzig scientist worked for twenty years compiling lists of derivatives from petroleum. Altogether he had fifteen volumes of statistics. Then he discovered that almost as many derivatives had been found by others, whereupon he killed himself. There is a hint of truth in the tragic tale because if research continues at the present rate, petroleum will outstrip coal-tar which furnishes so many useful by-products.

This naturally leads to another objective of chemical science affecting petroleum. It is in the extraction of oil, and oil substitutes, from sources other than oil wells. Foremost among these potential sources of oil is oil-shale, from which Great Britain last year produced 1,200,000 barrels.

Throughout the United States and especially in Northwestern Colorado, Wyoming and Utah, are vast beds of shale from which oil can be distilled. These shales, which are close kin to certain classes of coal, are capable of yielding a barrel of oil per ton in addition to other valuable products. They constitute a reserve of oil greater, perhaps, than the volume of our original natural petroleum supply before we began to exploit it.

Many difficulties lie in the way of making the shale oil available. In the first place the task of quarrying and mining, for some of the best oil shales are deeply buried beneath barren strata, would be stupendous. We use

more barrels of oil than tons of coal. Since not more than one barrel of oil can be expected from a ton of oil shale, an organization larger than our present coal-mining industry is necessary to produce enough oil shale to replace the present petroleum supply.

There is another obstacle in the shape of an incomplete distillation process. This however could be remedied by chemical research. The chief handicap is that the products of shale oil would be expensive because of the tremendous cost of mining and refining. It is calculated that gasoline derived from shale would cost not less than thirty-five cents and possibly forty or fifty cents a gallon.

Then, too, oil can be distilled from coal. For some years—and long before the dawn of the petroleum age—a goodly part of our kerosene owed its origin to coal. This is why it is called coal oil. Coal has yielded oil as a by-product in coke manufacture to such an extent that the annual output of oil products now runs into millions of barrels. The average ton of American coal, except anthracite, is capable of supplying a barrel of oil in addition to gas for fuel, ammonium nitrate, and other valuable distillates. Since our coal resources are immense we can therefore obtain a considerable portion of oil products from the coal distillation industry which is already established. Here is a second insurance policy against the failure of the petroleum supply.

In alcohol, made from waste plant products, is a third possible source of petroleum substitutes. Alcohol can be used as a fuel for internal combustion engines either in mixture with gasoline in the present type of engine as so widely obtains in France, or by itself in engines of special design. Industrial alcohol is produced in the United States at the rate of more than 50,000,000 gallons a year. This is less than one per cent of the volume of our present gasoline consumption and its present output would cut

little figure as a substitute. At best it can merely supplement our gasoline supply.

Thus in coal, shale distillation, and in alcohol, we have three important sources of petroleum products, apart from undiscovered oil fields, to bulwark the future supply. None of these potential sources figures significantly in the immediate situation and none will until the demand, sharpened by the ultimate inadequacy of the natural supply, and expressed in materially higher prices for products, becomes insistent.

With the price of gasoline we reach the last, and, so far as the average man is concerned, the most significant lap of this expedition toward some popular understanding of the oil business. While fuel only represents one-tenth of the cost of our automobile upkeep, it provokes more agitation than all the other items combined. It is the prize tickler of the pocket-nerve. This is why gasoline is an unfailing inciter of legislative investigations which, so far as concrete results are concerned, do anything but really investigate. Their principal by-product has been to provide campaign material for the inquisitors, with which to capture the motor vote. So far as determining a sound economic antidote for price fluctuations they have been a total loss.

An explanation of the machinery of the petroleum market is therefore in order as the concluding section of this chapter. To comprehend it you must understand the conditions under which crude oil is produced and moved because the rather unusual system of price-fixing has developed to fit the peculiarities of the commodity.

No one knows how much petroleum will be forthcoming any year nor whence it will come. There are, of course, certain proved fields on which production statistics can be built up with some degree of accuracy but the industry is always confronted with the necessity of opening new

pools to offset the loss of production, and to provide the increase due to the rapid expansion in consumption.

In no other important primary market is there so large a factor of uncertainty as in oil. The lumberman is able to map out areas to be cut, knowing that the timber will stand until it is wanted. Except when there are interruptions by strikes, coal operators work on a definite schedule. The Department of Agriculture can forecast, as of any given date, the number of bushels of wheat, corn, and bales of cotton which the country will produce barring unexpected losses by rust, drought, or boll-weevil. Control of the quantity of any of these commodities is largely in the hands of the producers to be increased or decreased to fit consumption.

The petroleum situation is different. Thousands of wells may be drilling today, but no statistician can multiply these wells by an average number of barrels which they can be counted upon to produce, and estimate the addition to the existing supply. The wildcat wells may prove to be dry holes, or one or more of them may come in with a big production which would mean a race for leases in that vicinity and a flood of oil that might demoralize the situation. Price is at the mercy of the moment.

Go back for a moment to grain and cotton and you know that there are hundreds of elevators and warehouses where agricultural products can be delivered for receipts which are negotiable at the bank. Quotations on the several grades of wheat are made in the daily trading on the Chicago Board of Trade, and on cotton in the exchanges of New York and Liverpool. The public knows the procedure followed in this kind of quotation. It has no knowledge of the agencies and influences that contribute to what is called the posted price of crude oil. I will endeavor to outline them.

For every large company interested in producing oil

for its own use, there are thousands of individuals and small firms engaged solely in producing wildcatting with no provision of their own for handling the oil after they get it. They sell their production either to the crude purchasing companies, or direct to refiners, brokers, or other buyers.

The purchasing companies endeavor to take all of the crude oil that is offered to them and literally post a price —hence the name—which they will pay for the product purchased. They give the producer a run ticket, as it is termed, at the price in effect on the day the crude is run from his tank. This ticket is the equivalent of cash to him. The producer knows each day just what price he will be paid for the oil which he sells on that particular day. After the crude has been acquired by the purchasing companies it is moved through the pipe lines and sold to the refiners.

At times the purchasing companies buy more than they are currently selling and the surplus goes into storage. Again, they sell more than they are buying and draw on their storage reserves for the difference. The refiners who do not obtain their crude requirements from some one of the purchasing companies generally contract with the producer, either for a definite quantity of crude, or for the producer's output with some fixed maximum, over a definite period of time. The price basis for these purchases is, under one set of conditions, a premium above the posted price of the purchasing companies. Under the reverse conditions there is a differential below the prevailing rate.

Different prices, dependent on the gravity of the crude, are posted and paid for different grades of petroleum. Mid-Continent crude, for instance, is classified by gravity into five different grades, each grade yielding a different percentage of gasoline. California production is divided

into a dozen grades, and so on. The prices depend on the value of the products obtainable in refining.

Just how the posted price fluctuates is shown by a brief review of the situation during the summer and fall of 1923. I will take the figures for the 33 gravity Mid-Continent grade as an example, although the quotations in all other fields varied more or less to the same extent. On May 12, the price paid by the purchasing companies for this grade of Mid-Continent crude was $1.45 a barrel. In June certain of these companies found that owing to the over-production in California more oil was being offered than they could market. As a result they were obliged to pro-rate purchases, taking only a fixed percentage from each producer, and not, as previously, taking all of the oil offered. Certain of the producers had to obtain an outlet for their excess production, not being able to store it themselves. This excess was sold to refiners, brokers, and others, at a price considerably below the posted price quotations of the purchasing companies.

The refiners, thus able to obtain their crude requirements at a discount, were naturally able to sell their finished products, including gasoline, at a price below that of the refiners obtaining their supplies at the posted price through the purchasing companies. To meet this condition, the big buying concerns were compelled, early in September, to reduce the posted price to $1.30 per barrel, and again in November to $1 per barrel.

At this price some of those who had empty tankage decided that they were justified in buying crude to go into storage, with the result that the different purchasing companies found it possible to take more of the crude offered to them by the producers up to the point where the pro rate was lifted entirely.

With the lifting of the pro rate, no crude could be purchased at less than the posted price. Those who had

previously been purchasing at a discount were obliged to offer a premium. The producers from whom they had been obtaining their supplies said to them in effect, "You took advantage of us to the extent of 25 to 50 cents a barrel when we were up against it to sell our surplus oil owing to the pro rate. Now if you want to buy from us you must pay us a premium over what we are getting from the purchasing companies who paid us the posted price during the period of overproduction." These premiums, since they took crude away from the big companies, brought about an increase in the posted price on January 9th, to $1.25 a barrel. This was followed by subsequent advances until March 31st, when it was $1.75.

From this mass of dull but necessary detail it is obvious that demand and supply, aided and abetted by conditions peculiar to petroleum production, dictate the price of crude. What on the face seems to be collusion, is in reality an intensive competition which makes the rate initiated by one purchaser common to the whole area concerned.

Why does the price of gasoline fluctuate so widely? Here is an enigma somewhat akin to the riddle of the sphinx.

Many factors enter into the variations. In localities adjacent to large producing fields such as Southern California, the retail market is less than in places more remote because transportation must be considered. Gasoline is moved in tank cars across the country. The rail rate is much higher than the water freight. It costs no more to send the fuel by tanker from California through the Panama Canal to New York than it does to convey it by tank-car from the Pennsylvania oil region to the same region. Carriage charges frequently add 20 per cent to the price of gasoline.

You have already seen in the analysis of the 1923 situation how some refiners can get their raw material

under the posted price during periods of over-production. Marked-down gasoline is sometimes doped with inferior elements as the motorist finds out to his cost. Again, most of the States have a gasoline tax which adds to the cost. As a matter of fact, and although it is the butt of much abuse, gasoline, according to the Bureau of Labor reports, has ranged at a lower average price level during the past ten years than all the other essential commodities, including sugar, wheat, flour, cotton, copper, and corn.

The real reason why gasoline, although only comprising ten per cent of the total cost of our automobile upkeep, causes so much agitation is that it is a daily or weekly charge, whereas car, tire, and accessory renewal is much less frequent. If the average man had to pay his rent by the day he would probably feel the same resentment toward his landlord who might be his best friend. Hence, no matter what the price, gasoline will undoubtedly remain a perpetual irritant. Economies in its consumption along the lines that I have indicated, with a corresponding reduction in outlay, will only develop when the price dictates conservation.

We now come to the end of the oil road. Before the reader has passed the panorama of an industry whose expansion is one of the wonder-tales of these modern business times. To picturesqueness of detail and personality is added a romance of fortune not approached in any other activity. Behind all this is the bigger fact that it is vitally and distinctively American, both in the range of its operation and in the resolution with which it faces the problem of future service.

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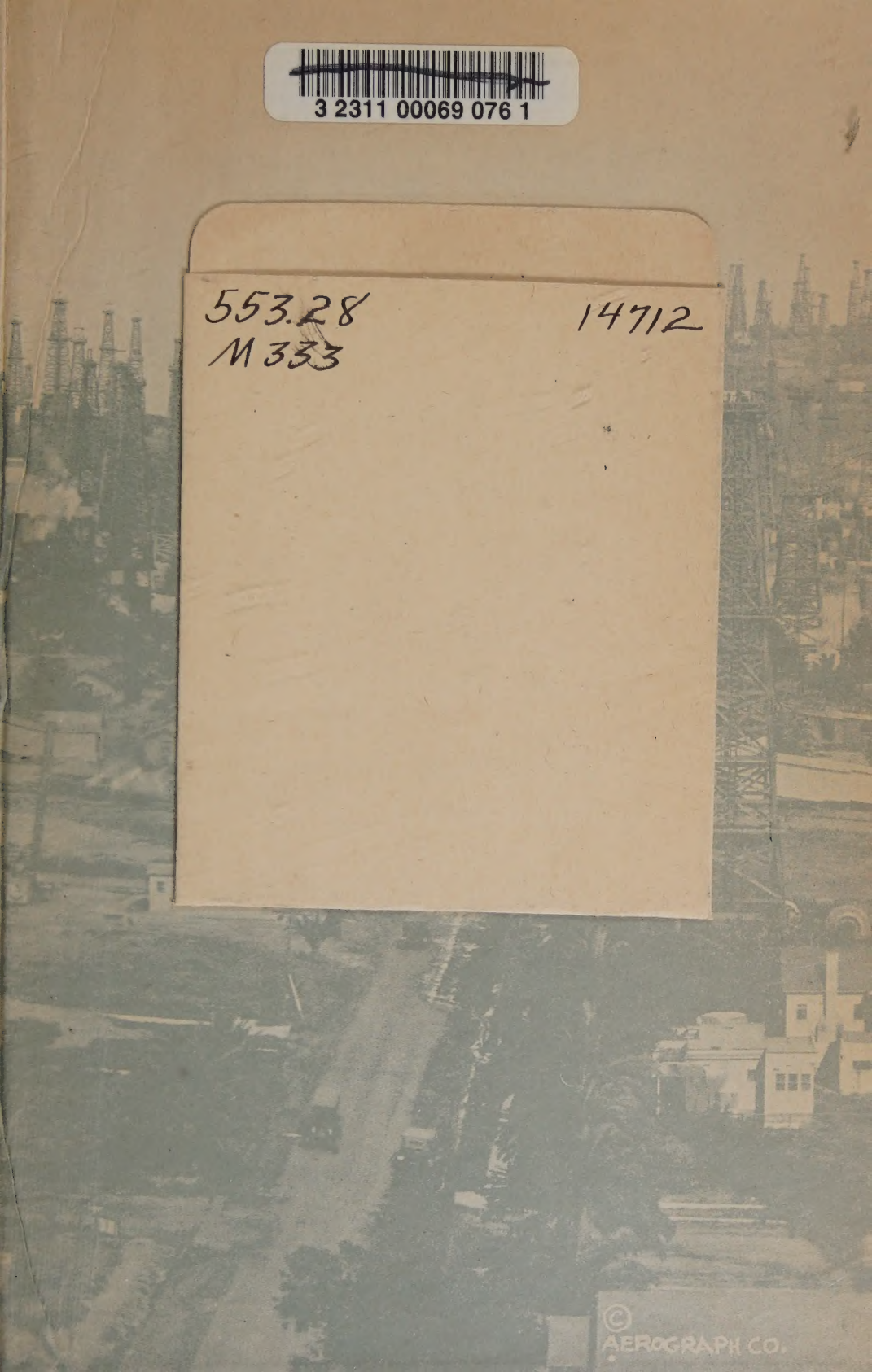
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